16421.00_HD(COV).DWG Plotted on 30-Apr-2025 2:03 PM

PLAN AND PROFILE OF

SHORE ROAD OVER ABERJONA RIVER

(BRIDGE NO. W-40-029)

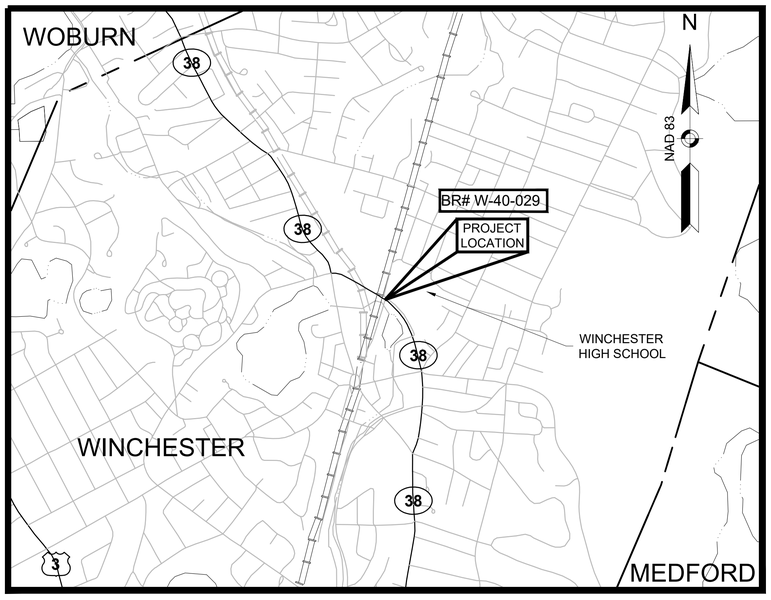
IN THE TOWN OF

WINCHESTER

MIDDLESEX COUNTY

INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET & INDEX
2	LEGEND & ABBREVIATIONS
3	TYPICAL SECTIONS
4	CONSTRUCTION PLAN
5	CURB TIE & GRADING PLANS
6 - 7	CONSTRUCTION DETAILS
8 - 12	TEMPORARY TRAFFIC CONTROL PLANS
	BRIDGE PLANS
13	BRIDGE GENERAL PLAN
14	BRIDGE GENERAL NOTES
16 - 17	BRIDGE CONSTRUCTION DETAILS
21	RAILING DETAILS



0 1000 2000 3000 4000

SCALE: 1" = 1000'

THESE PLANS ARE SUPPLEMENTED BY THE MASSDOT 2025 CONSTRUCTION STANDARD DETAILS, THE 2015 OVERHEAD SIGNAL STRUCTURE AND FOUNDATION STANDARD DRAWINGS, MASSDOT TRAFFIC MANAGEMENT PLANS AND DETAIL DRAWINGS, THE 1990 STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, THE 1968 STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING, AND THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK.

ISSUED FOR BIDS

Vanasse Hangen Brustlin, Inc.
260 Arsenal PL #2
PO Box 9151
Watertown, MA 02471
617.924.1770

DESIGNED BY	DATE	
JDT	04/30/2025	
DRAWN BY	SCALE	
SLL	1' = 20'	
CHECKED BY	SHEET	JOB NO.
KK	1 OF 21	16421.00

GENERAL SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
JB	JB	JERSEY BARRIER
CB	CB	CATCH BASIN
		CATCH BASIN CURB INLET
FP	FP	FLAG POLE
GP	GP	GAS PUMP
MB	MB	MAIL BOX
		POST SQUARE
		POST CIRCULAR
WELL	WELL	WELL
EHH	EHH	ELECTRIC HANDHOLE
		FENCE GATE POST
GG	GG	GAS GATE
BHL #	BHL #	BORING HOLE
MW #	MW #	MONITORING WELL
TP #	TP #	TEST PIT
		HYDRANT
		LIGHT POLE
CO.BD.		COUNTY BOUND
		GPS POINT
C	C	CABLE MANHOLE
D	D	DRAINAGE MANHOLE
E	E	ELECTRIC MANHOLE
G	G	GAS MANHOLE
M	M	MISC MANHOLE
S	S	SEWER MANHOLE
T	T	TELEPHONE MANHOLE
W	W	WATER MANHOLE
MHB	MHB	MASSACHUSETTS HIGHWAY BOUND
MON		MONUMENT
SB		STONE BOUND
TB		TOWN OR CITY BOUND
		TRAVERSE OR TRIANGULATION STATION
TPL or GUY	TPL or GUY	TROLLEY POLE OR GUY POLE
HTP		TRANSMISSION POLE
UFB	UFB	UTILITY POLE W/ FIREBOX
UPDL	UPDL	UTILITY POLE WITH DOUBLE LIGHT
ULT	ULT	UTILITY POLE W / 1 LIGHT
UPL	UPL	UTILITY POLE
		BUSH
SIZE & TYPE		TREE
		STUMP
		SWAMP / MARSH
WG	WG	WATER GATE
PM	PM	PARKING METER
		OVERHEAD CABLE/WIRE
		CURBING
100 99		CONTOURS (ON-THE-GROUND SURVEY DATA)
100 99		CONTOURS (PHOTOGRAMMETRIC DATA)
		UNDERGROUND DRAIN PIPE (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND ELECTRIC DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND GAS MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND SEWER MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND TELEPHONE DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND WATER MAIN (DOUBLE LINE 24 INCH AND OVER)
		BALANCED STONE WALL
		GUARD RAIL - STEEL POSTS
		GUARD RAIL - WOOD POSTS
		GUARD RAIL - DOUBLE FACE - STEEL POSTS
		GUARD RAIL - DOUBLE FACE - WOOD POSTS
x	x	CHAIN LINK OR METAL FENCE
		WOOD FENCE
		SEDIMENT BARRIER
		COIR LOG SEDIMENT BARRIER
		TREE LINE
		SAWCUT LINE
		TOP OR BOTTOM OF SLOPE
		LIMIT OF EDGE OF PAVEMENT OR COLD PLANE AND OVERLAY
		BANK OF RIVER OR STREAM
		BORDER OF WETLAND
		100 FT WETLAND BUFFER
		200 FT RIVERFRONT BUFFER
		STATE HIGHWAY LAYOUT
		TOWN OR CITY LAYOUT
		COUNTY LAYOUT
		RAILROAD SIDELINE
		TOWN OR CITY BOUNDARY LINE
		PROPERTY LINE OR APPROXIMATE PROPERTY LINE
		EASEMENT

TRAFFIC SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
1	1	CONTROLLER PHASE ACTUATED
		TRAFFIC SIGNAL HEAD (SIZE AS NOTED)
		WIRE LOOP DETECTOR (6' x 6' TYP UNLESS OTHERWISE SPECIFIED)
		VIDEO DETECTION CAMERA
		MICROWAVE DETECTOR
		PEDESTRIAN PUSH BUTTON, SIGN (DIRECTIONAL ARROW AS SHOWN) AND SADDLE
	*	EMERGENCY PREEMPTION CONFIRMATION STROBE LIGHT
		VEHICULAR SIGNAL HEAD
		VEHICULAR SIGNAL HEAD, OPTICALLY PROGRAMMED
		FLASHING BEACON
		PEDESTRIAN SIGNAL HEAD, (TYPE AS NOTED OR AS SPECIFIED)
RRSG	RRSG	RAILROAD SIGNAL
OR		SIGNAL POST AND BASE (ALPHA-NUMERIC DESIGNATION NOTED)
	20'	MAST ARM, SHAFT AND BASE (ARM LENGTH AS NOTED)
		HIGH MAST POLE OR TOWER
		SIGN AND POST
		SIGN AND POST (2 POSTS)
	20'	MAST ARM WITH LUMINAIRE
		OPTICAL PRE-EMPTION DETECTOR
		CONTROL CABINET, GROUND MOUNTED
		CONTROL CABINET, POLE MOUNTED
		FLASHING BEACON CONTROL AND METER PEDESTAL
		LOAD CENTER ASSEMBLY
		PULL BOX 12"x12" (OR AS NOTED)
		ELECTRIC HANDHOLE 12"x24" (OR AS NOTED)
		TRAFFIC SIGNAL CONDUIT

PAVEMENT MARKINGS SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		PAVEMENT ARROW - WHITE
ONLY	ONLY	LEGEND "ONLY" - WHITE
	SL	STOP LINE
	CW	CROSSWALK
	SWL	SOLID WHITE LINE
	SYL	SOLID YELLOW LINE
	BWL	BROKEN WHITE LINE
	BYL	BROKEN YELLOW LINE
	DWL	DOTTED WHITE LINE
	DYL	DOTTED YELLOW LINE
	DWLEx	DOTTED WHITE LINE EXTENSION
	DYLEx	DOTTED YELLOW LINE EXTENSION
	DBWL	DOUBLE WHITE LINE
	DBYL	DOUBLE YELLOW LINE

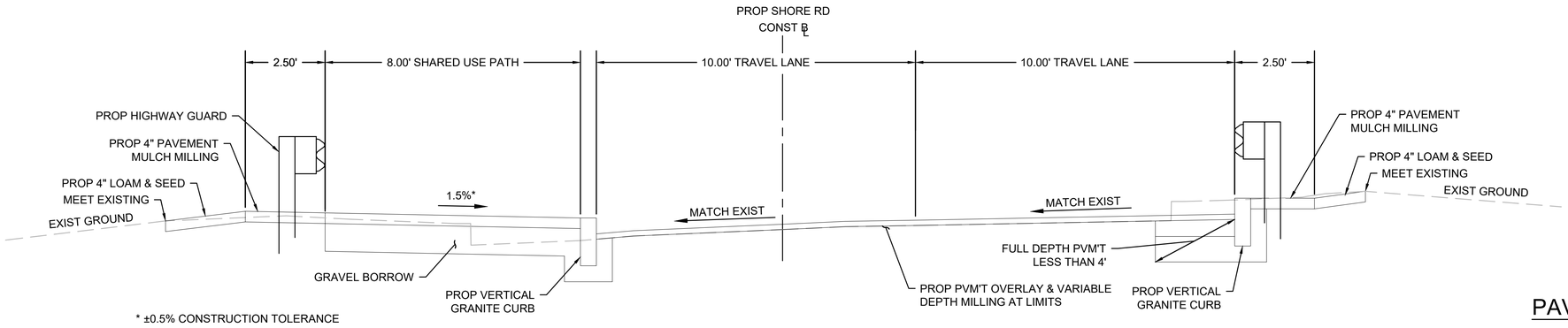
WINCHESTER
SHORE ROAD
LEGEND & ABBREVIATIONS
SHEET 2 OF 21

GENERAL NOTES:

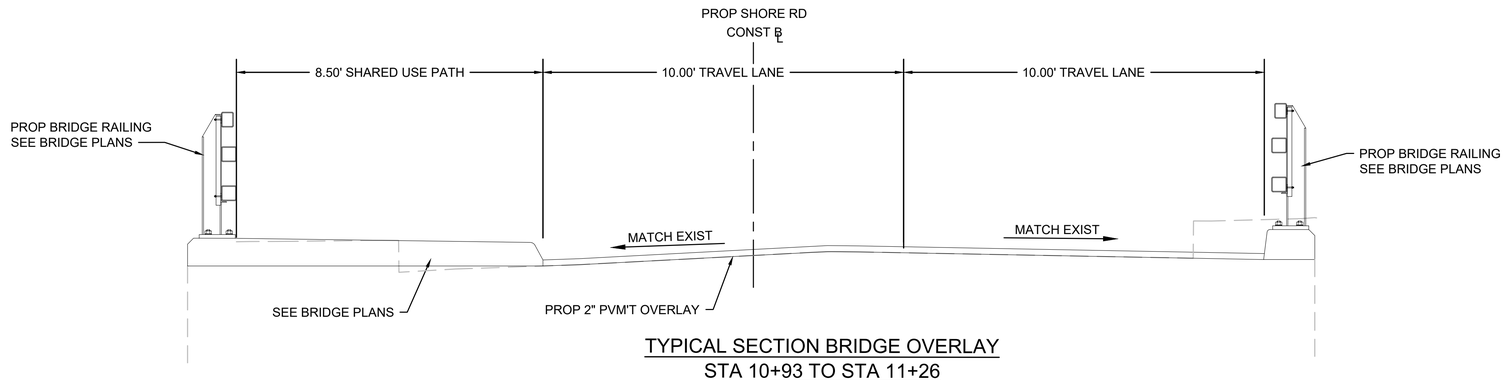
1. EXISTING CONDITIONS AND TOPOGRAPHICAL INFORMATION FROM AN ACTUAL FIELD SURVEY CONDUCTED BY VHB, INC. IN JULY OF 2024.
2. THE HORIZONTAL CONTROL IS BASED ON THE MASSACHUSETTS MAINLAND STATE PLANE COORDINATE SYSTEM AND THE NATIONAL GEODETIC SURVEY (NAD83). ALL ELEVATION IS US FEET, REFERENCED TO THE NORTH AMERICA VERTICAL DATUM OF 1988 (NAVD88).
3. THE CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND GRADES IN THE FIELD BEFORE COMMENCING WORK AND PROMPTLY NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
4. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES, IF REQUIRED.
5. TREES AND SHRUBS WITHIN THE LIMITS OF GRADING SHALL BE REMOVED ONLY UPON APPROVAL OF THE ENGINEER.
6. AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT NO EXPENSE TO THE OWNER.
7. THE TERM "PROPOSED" (PROP) MEANS WORK TO BE CONSTRUCTED USING NEW MATERIALS OR, WHERE APPLICABLE, RE-USING EXISTING MATERIALS IDENTIFIED AS "REMOVE AND RESET" (R&R).
8. JOINTS BETWEEN NEW ASPHALT CONCRETE ROADWAY PAVEMENT AND SAWCUT EXISTING PAVEMENT SHALL BE SEALED WITH HMA JOINT SEALER AND BACKSANDED.
9. EXISTING SIGNS WITHIN THE PROJECT LIMITS SHALL BE RETAINED UNLESS INDICATED OTHERWISE ON THE DRAWINGS.
10. EXISTING STATE, COUNTY, CITY, AND TOWN LOCATION LINES AND PRIVATE PROPERTY LINES HAVE BEEN ESTABLISHED FROM AVAILABLE INFORMATION AND THEIR EXACT LOCATIONS ARE NOT GUARANTEED.
11. THE CONTRACTOR SHALL EXERCISE DUE CARE WHEN WORKING AROUND ALL PROPERTY BOUNDS WHICH ARE TO REMAIN. SHOULD ANY DAMAGE TO A BOUND RESULT FROM THE ACTIONS OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE THE BOUND REPLACED AND/OR REALIGNED BY A LICENSED PROFESSIONAL SURVEYOR AS DIRECTED BY THE ENGINEER AT NO ADDITIONAL COST.
12. DISPOSAL OF ALL SURPLUS MATERIAL SHALL BE AS APPROVED BY THE ENGINEER AND OWNER.

16421.00_HDILEG).DWG Plotted on 30-Apr-2025 2:04 PM

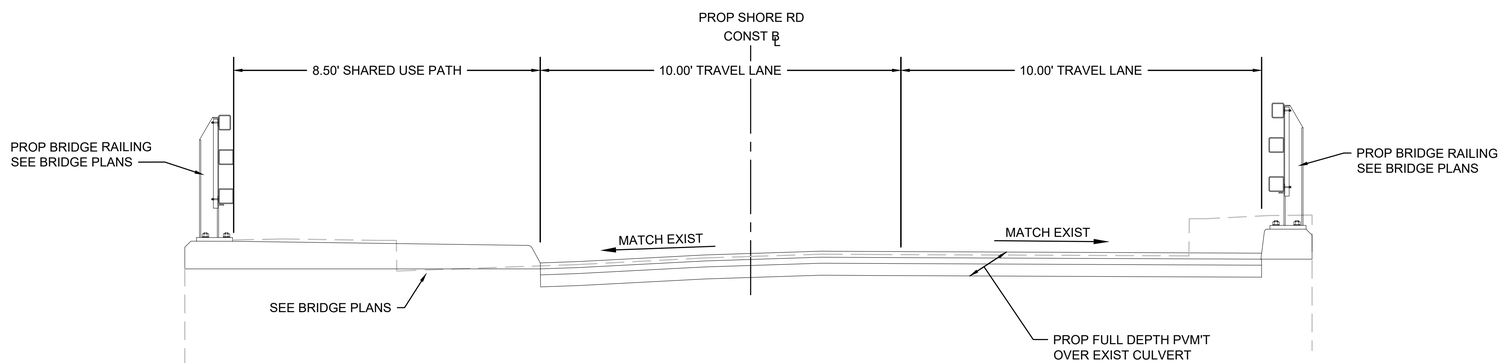
16421.00_HD(TYP).DWG Plotted on 30-Apr-2025 2:04 PM



TYPICAL SECTION MILL AND OVERLAY
STA 10+56 TO STA 10+93
STA 11+35 TO STA 11+83



TYPICAL SECTION BRIDGE OVERLAY
STA 10+93 TO STA 11+26



TYPICAL SECTION FULL DEPTH PAVEMENT
STA 11+26 TO STA 11+35

PAVEMENT NOTES

PROPOSED PAVEMENT OVERLAY

SURFACE:	2" SUPERPAVE SURFACE COURSE - 12.5 POLYMER (SSC-12.5-P) OVER
MILLING:	VARIABLE DEPTH MILLING (2" MAX AT LIMITS)

PROPOSED BRIDGE OVERLAY (OVER CULVERT CELLS 2 & 3)

SURFACE:	2" SUPERPAVE SURFACE COURSE - 12.5 POLYMER (SSC-12.5-P) OVER MEMBRANE WATERPROOFING

PROPOSED FULL DEPTH PAVEMENT (OVER CULVERT CELL 1)

SURFACE:	2" SUPERPAVE SURFACE COURSE - 12.5 POLYMER (SSC-12.5-P) OVER
BASE:	4" SUPERPAVE BASE COURSE 25.0 (SBC-25.0) OVER
*SUBBASE:	VARIABLE DEPTH (2" MIN) GRAVEL BORROW, TYPE B, OVER MEMBRANE WATERPROOFING

PROPOSED FULL DEPTH PAVEMENT <4'

SURFACE:	2" SUPERPAVE SURFACE COURSE - 12.5 POLYMER (SSC-12.5-P) OVER
BASE:	6" HIGH EARLY STRENGTH CEMENT CONCRETE BASE OVER
*SUBBASE:	8" GRAVEL BORROW, TYPE B

PROPOSED CEMENT CONCRETE WALK / SHARED USE PATH

SURFACE:	4" CEMENT CONCRETE AIR ENTRAINED 4,000 PSI, $\frac{3}{4}$", 610
*SUBBASE:	8" GRAVEL BORROW, TYPE B

*WHERE EXISTING GRAVEL IS FOUND TO BE SUITABLE, THE EXISTING GRAVEL MAY BE USED IN PROPOSED SUBBASE, AFTER APPROVAL BY THE ENGINEER

NOTES:

1. ALL HOT MIX ASPHALT PAVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST EDITIONS OF SECTION 450 HOT MIX ASPHALT AND SECTION M3 ASPHALTIC MATERIALS OF THE MASSDOT STANDARD SPECIFICATIONS.
2. ASPHALT EMULSION FOR TACK COAT SHALL BE SPRAY APPLIED FOR DOUBLE OVERLAP COVERAGE AT 0.08 GALLONS PER SQUARE YARD OVER MILLED SURFACES AND 0.07 GALLONS PER SQUARE YARD OVER SMOOTH SURFACES.
3. HMA JOINT ADHESIVE SHALL BE APPLIED IN SURFACE COURSE AT ALL VERTICAL COLD JOINTS PRIOR TO HMA PAVING.
4. SURFACE PAVING TO BE COMPLETED AT THE END OF THE PROJECT AND AS DIRECTED WHEN IT CAN BE PLACED IN ITS ENTIRETY.
5. ALL CASTINGS SHALL BE ADJUSTED TO SURFACE COURSE PRIOR TO PAVING WITH HMA JOINT SEALANT.

HIGHWAY GUARD DETAILS

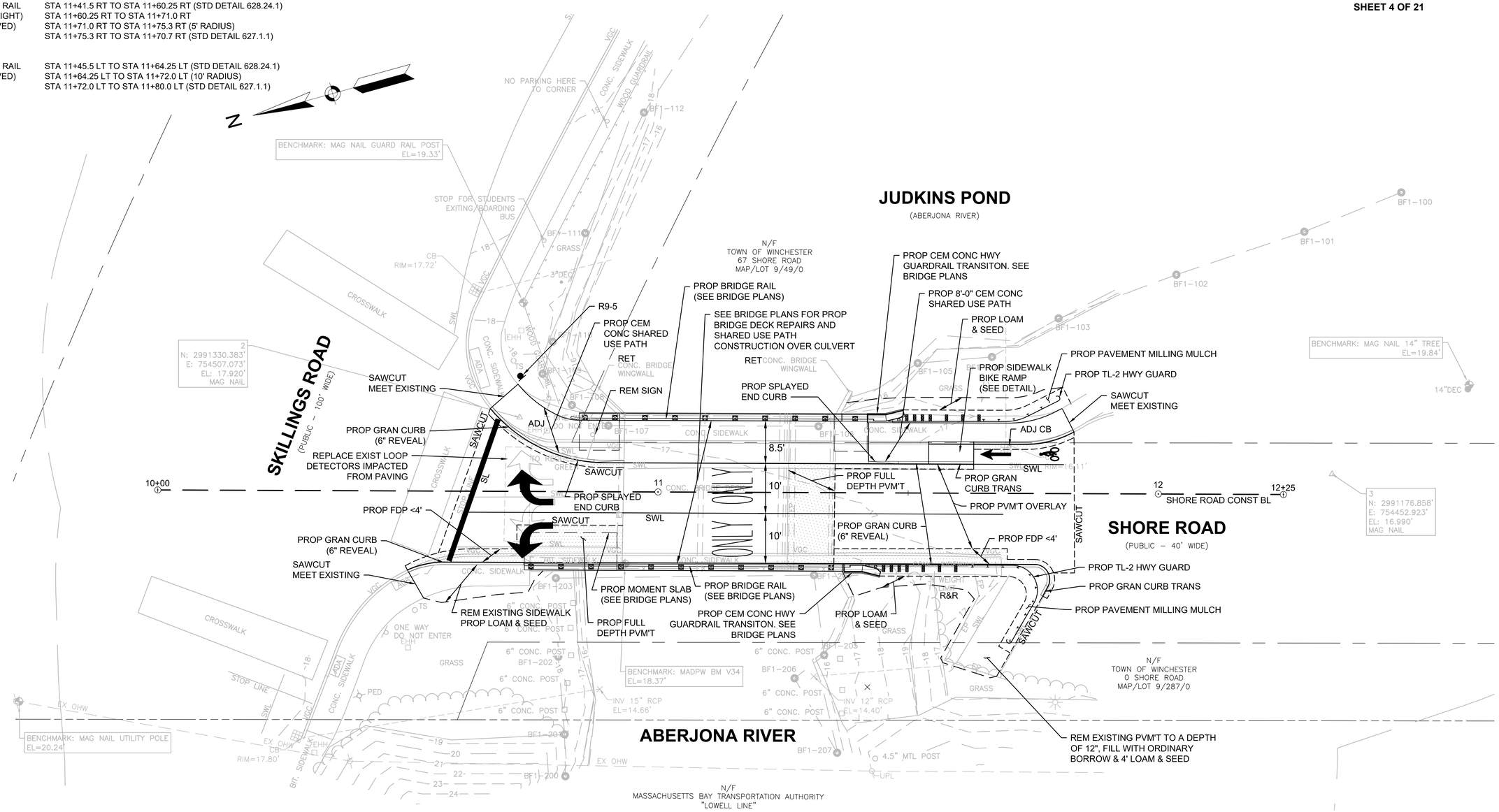
NOTE: ALL HIGHWAY GUARD SHALL BE INSTALLED IN ACCORDANCE WITH THE 2025 MASSDOT STANDARD CONSTRUCTION DETAILS AND SECTION 601 OF THE 2025 MASSDOT STANDARD SPECIFICATIONS.

TRANSITION TO BRIDGE RAIL	STA 11+41.5 RT TO STA 11+60.25 RT (STD DETAIL 628.24.1)
TL-2 HWY GUARD (STRAIGHT)	STA 11+60.25 RT TO STA 11+71.0 RT
TL-2 HWY GUARD (CURVED)	STA 11+71.0 RT TO STA 11+75.3 RT (5' RADIUS)
TRAILING ANCHORAGE	STA 11+75.3 RT TO STA 11+70.7 RT (STD DETAIL 627.1.1)

TRANSITION TO BRIDGE RAIL	STA 11+45.5 LT TO STA 11+64.25 LT (STD DETAIL 628.24.1)
TL-2 HWY GUARD (CURVED)	STA 11+64.25 LT TO STA 11+72.0 LT (10' RADIUS)
TRAILING ANCHORAGE	STA 11+72.0 LT TO STA 11+80.0 LT (STD DETAIL 627.1.1)

WINCHESTER
SHORE ROAD
CONSTRUCTION PLAN
SHEET 4 OF 21

16421.00_HD(CONST).DWG Plotted on 30-Apr-2025 2:04 PM



SIGN SUMMARY CHART

IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACK-GROUND	LEGEND	BORDER		
R9-5	12"	18"		SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION"; AS AMENDED			1	WHITE	BLACK	BLACK	P5-2	1.50

NOTES:
1. HIGH INTENSITY REFLECTIVE SHEETING SHALL BE USED FOR ALL SIGNS. SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION" FOR TEXT DIMENSIONS, AS AMENDED; THE 1977 MASSHIGHWAY DEPARTMENT CONSTRUCTION AND TRAFFIC STANDARD DETAILS, AS AMENDED, FOR SIGNS AND SUPPORTS; THE MASSHIGHWAY DEPARTMENT SIGN LISTINGS 1993 EDITION, AS AMENDED; THE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR MOUNTING REQUIREMENTS; AND THE 2017 MASSDOT STANDARD SIGNS BOOK, AS AMENDED.
2. ALL SIGNS SHOWN GRAPHICALLY FOR INFORMATION ONLY. SIGN VENDOR SHALL FABRICATE ALL SIGNS IN ACCORDANCE WITH THE APPLICABLE STANDARDS.

CONSTRUCTION NOTES:
1. ALL SIGNS WITHIN THE PROJECT LIMITS SHALL BE RETAINED UNLESS OTHERWISE NOTED.
2. ALL PAVEMENT MARKINGS SHALL BE REFLECTORIZED THERMOPLASTIC UNLESS OTHERWISE NOTED.

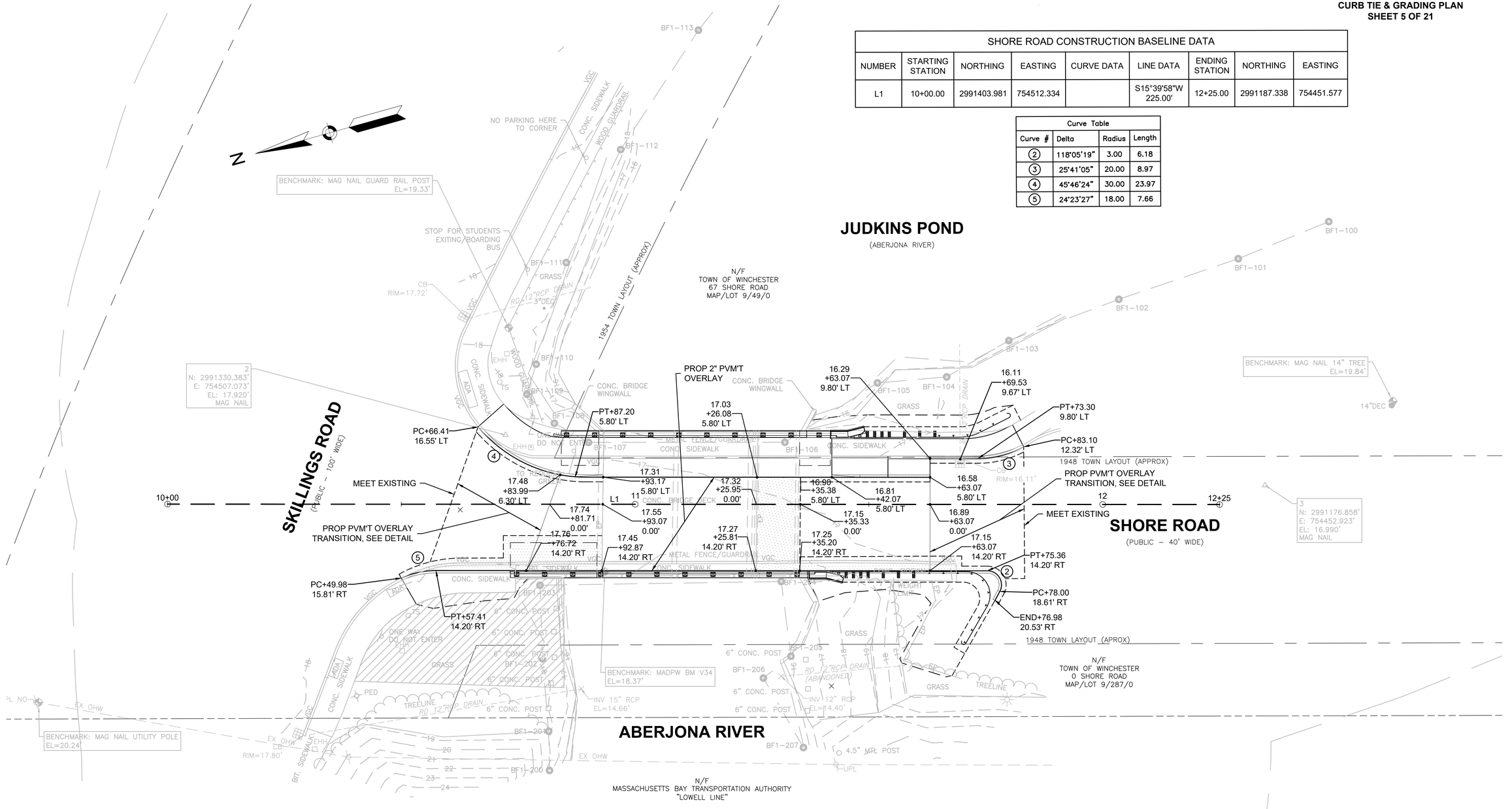
10 0 10 20
SCALE IN FEET

WINCHESTER
SHORE ROAD
CURB TIE & GRADING PLAN
SHEET 5 OF 21

16421.00_HD(GRAD).DWG Plotted on 30-Apr-2025 2:05 PM

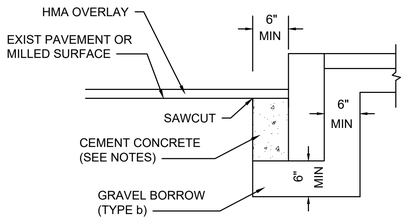
SHORE ROAD CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L1	10+00.00	2991403.981	754512.334		S15°39'58"W 225.00'	12+25.00	2991187.338	754451.577

Curve Table			
Curve #	Delta	Radius	Length
(2)	118°05'19"	3.00	6.18
(3)	25°41'05"	20.00	8.97
(4)	45°46'24"	30.00	23.97
(5)	24°23'27"	18.00	7.66



FOR CONSTRUCTION PROFILE:
SEE SHEET NO. #

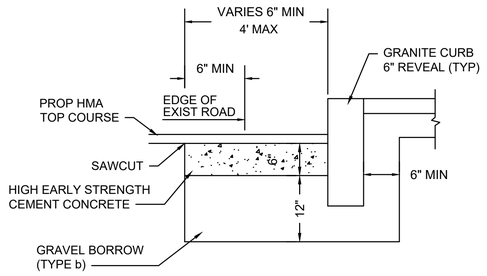
16421.00_HD(DET).DWG Plotted on 30-Apr-2025 2:05 PM



NOTES:
1. SAWCUT 6" FROM CURB LINE AND REMOVE EXISTING PAVEMENT AND GRAVEL. REPLACE WITH CEMENT CONCRETE.
2. ANY DESIGNATED CEMENT CONCRETE THAT IS ACCEPTABLE UNDER SECTION M4 OF THE STANDARD SPECIFICATIONS MAY BE USED. ALL TEST REQUIREMENTS ARE WAIVED. HOT MIX ASPHALT SHALL NOT BE USED AS A SUBSTITUTE.

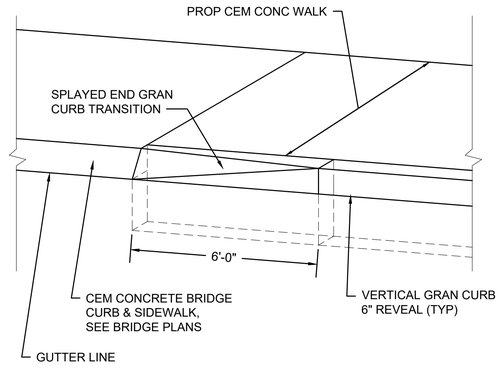
GRANITE CURB IN EXISTING PAVEMENT - WITH OVERLAY

SCALE: N.T.S.



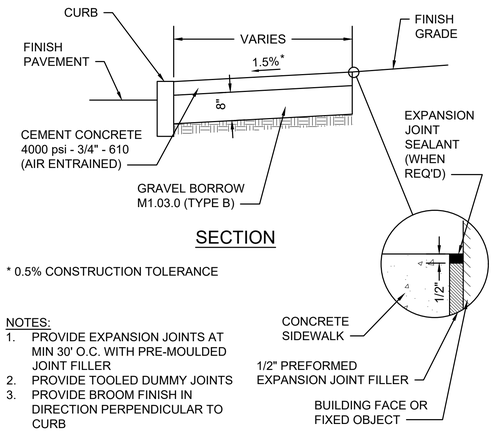
GRANITE CURB IN FULL DEPTH PAVEMENT LESS THAN 4' WIDE

SCALE: N.T.S.


PROP CEM CONC WALK
SPLAYED END GRAN CURB TRANSITION
6'-0"
CEM CONCRETE BRIDGE CURB & SIDEWALK, SEE BRIDGE PLANS
VERTICAL GRAN CURB 6" REVEAL (TYP)
GUTTER LINE

GRANITE CURB SPLAYED END

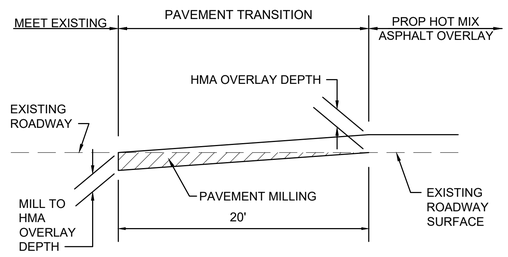
SCALE: N.T.S.



NOTES:
1. PROVIDE EXPANSION JOINTS AT MIN 30' O.C. WITH PRE-MOULDED JOINT FILLER
2. PROVIDE TOOLED DUMMY JOINTS
3. PROVIDE BROOM FINISH IN DIRECTION PERPENDICULAR TO CURB

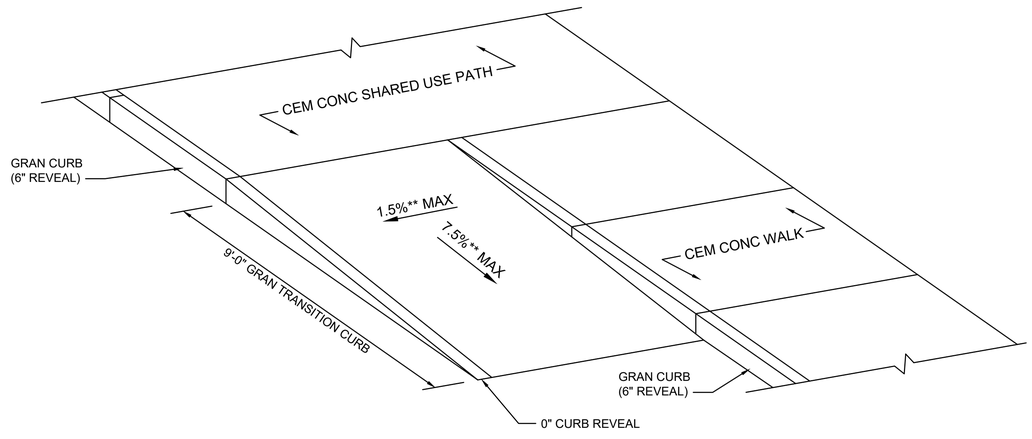
CEMENT CONCRETE SIDEWALK

SCALE: N.T.S.



OVERLAY TRANSITION LONGITUDINAL SECTION

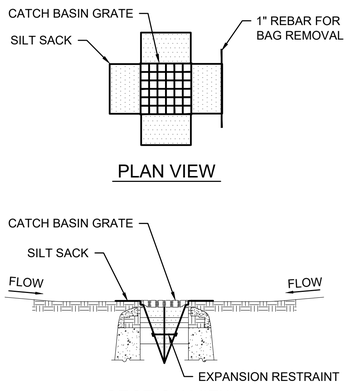
SCALE: N.T.S.



SIDEWALK BIKE RAMP

SCALE: N.T.S.

16421.00_HD(DET).DWG Plotted on 30-Apr-2025 2:05 PM

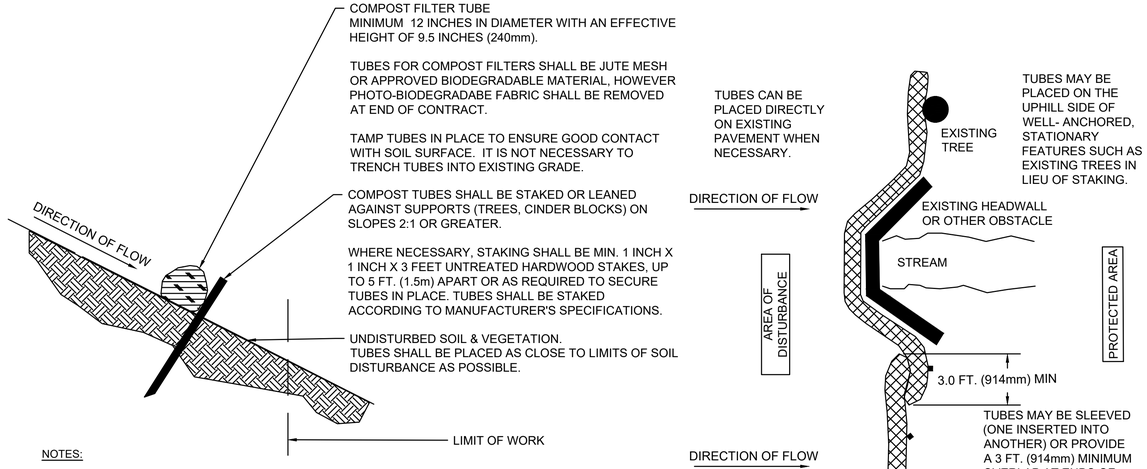


NOTES:

1. INSTALL SILT SACK IN EXISTING CATCH BASINS, BEFORE COMMENCING WORK, AND IN NEW CATCH BASINS IMMEDIATELY AFTER INSTALLATION OF STRUCTURE. MAINTAIN UNTIL BINDER COURSE PAVING IS COMPLETE OR A PERMANENT STAND OF GRASS HAS BEEN ESTABLISHED.
2. GRATE TO BE PLACED OVER SILT SACK.
3. SILT SACK SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS AND CLEANING OR REPLACEMENT SHALL BE PERFORMED

INLET PROTECTION - SILT SACK IN CATCH BASIN

SCALE: N.T.S.


COMPOST FILTER TUBE
MINIMUM 12 INCHES IN DIAMETER WITH AN EFFECTIVE HEIGHT OF 9.5 INCHES (240mm).
TUBES FOR COMPOST FILTERS SHALL BE JUTE MESH OR APPROVED BIODEGRADABLE MATERIAL, HOWEVER PHOTO-BIODEGRADABE FABRIC SHALL BE REMOVED AT END OF CONTRACT.
TAMP TUBES IN PLACE TO ENSURE GOOD CONTACT WITH SOIL SURFACE. IT IS NOT NECESSARY TO TRENCH TUBES INTO EXISTING GRADE.
COMPOST TUBES SHALL BE STAKED OR LEANED AGAINST SUPPORTS (TREES, CINDER BLOCKS) ON SLOPES 2:1 OR GREATER.
WHERE NECESSARY, STAKING SHALL BE MIN. 1 INCH X 1 INCH X 3 FEET UNTREATED HARDWOOD STAKES, UP TO 5 FT. (1.5m) APART OR AS REQUIRED TO SECURE TUBES IN PLACE. TUBES SHALL BE STAKED ACCORDING TO MANUFACTURER'S SPECIFICATIONS.
UNDISTURBED SOIL & VEGETATION.
TUBES SHALL BE PLACED AS CLOSE TO LIMITS OF SOIL DISTURBANCE AS POSSIBLE.
DIRECTION OF FLOW
LIMIT OF WORK
TUBES CAN BE PLACED DIRECTLY ON EXISTING PAVEMENT WHEN NECESSARY.
DIRECTION OF FLOW
AREA OF DISTURBANCE
DIRECTION OF FLOW
CURVE ENDS UPHILL TO PREVENT DIVERSION OF UNFILTERED RUN-OFF.
EXISTING TREE
TUBES MAY BE PLACED ON THE UPHILL SIDE OF WELL- ANCHORED, STATIONARY FEATURES SUCH AS EXISTING TREES IN LIEU OF STAKING.
EXISTING HEADWALL OR OTHER OBSTACLE
STREAM
PROTECTED AREA
3.0 FT. (914mm) MIN
TUBES MAY BE SLEEVED (ONE INSERTED INTO ANOTHER) OR PROVIDE A 3 FT. (914mm) MINIMUM OVERLAP AT ENDS OF TUBES TO JOIN IN A CONTINUOUS BARRIER.
UNTREATED HARDWOOD STAKED (TYP)
PLAN

NOTES:

1. PROVIDE A MINIMUM TUBE DIAMETER OF 12 INCHES (300mm) FOR SLOPES UP TO 50 FEET (15.24m) IN LENGTH WITH A SLOPE RATIO OF 3H:1V OR STEEPER. LONGER SLOPES OF 3H:1V MAY REQUIRE LARGER TUBE DIAMETER OR ADDITIONAL COURSING OF FILTER TUBES TO CREATE A FILTER BERM. REFER TO MANUFACTURER'S RECOMMENDATIONS FOR SITUATIONS WITH LONGER OR STEEPER SLOPES.
2. INSTALL TUBES ALONG CONTOURS AND PERPENDICULAR TO SHEET OR CONCENTRATED FLOW.
3. TUBE LOCATION MAY BE SHIFTED TO ADJUST TO LANDSCAPE FEATURES, BUT SHALL PROTECT UNDISTURBED AREA AND VEGETATION TO MAXIMUM EXTENT POSSIBLE.
4. DO NOT INSTALL IN PERENNIAL, EPHEMERAL OR INTERMITTENT STREAMS.
5. ADDITIONAL TUBES SHALL BE USED AT THE DIRECTION OF THE ENGINEER.
6. ADDITIONAL STAKING SHALL BE USED AT THE DIRECTION OF THE ENGINEER.

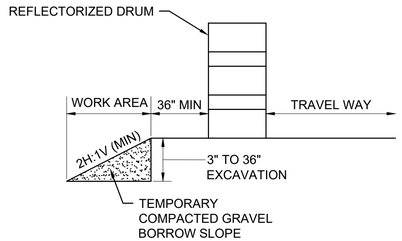
EROSION CONTROL BARRIER - COMPOST FILTER TUBE

SCALE: N.T.S.

16421.00_HD(TTCP_GEN).DWG Plotted on 30-Apr-2025 2:05 PM

GENERAL NOTES

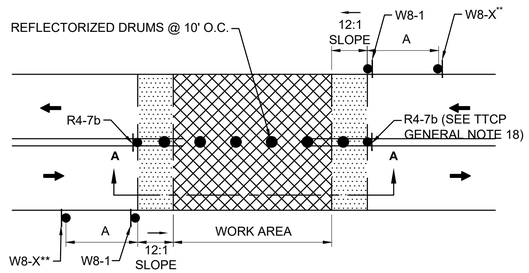
1. ALL CONSTRUCTION SIGNING, TEMPORARY TRAFFIC CONTROL DEVICES, AND ROADSIDE ELEMENTS SHALL CONFORM WITH THE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AS AMENDED, THE MASSDOT STANDARD DETAILS AND DRAWINGS FOR THE DEVELOPMENT OF TEMPORARY TRAFFIC CONTROL PLANS, THE LATEST REVISIONS OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, (AASHTO) ROADSIDE DESIGN GUIDE, AASHTO POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS, AND NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP) REPORT 350 OR THE AASHTO MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
2. WORK HOURS SHALL BE 7:00AM TO 3:00PM MONDAY THRU FRIDAY UNLESS OTHERWISE APPROVED BY THE TOWN.
3. NO WORK SHALL OCCUR WITHIN THE PUBLIC WAY THE DAY BEFORE, AFTER OR ON A STATE RECOGNIZED HOLIDAY UNLESS OTHERWISE APPROVED BY THE ENGINEER.
4. ALL TEMPORARY PEDESTRIAN PATHWAYS SHALL COMPLY FULLY WITH ALL REQUIREMENTS OF THE MUTCD AND ALL APPLICABLE MASSACHUSETTS ARCHITECTURAL ACCESS BOARD (MAAB) AND AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES (ADAAG) REQUIREMENTS AND PUBLIC RIGHTS-OF WAY ACCESSIBILITY GUIDELINES (PROWAG).
5. ALL DRUMS OUTSIDE TAPERS SHALL BE SET AT 20' ON CENTER MAX. UNLESS OTHERWISE NOTED OR ADJUSTED BY THE ENGINEER.
6. ALL DRUMS SHALL BE APPROXIMATELY PLACED AND MOVED AS NECESSARY TO MAINTAIN SAFE AND REASONABLE ABUTTER ACCESS. WORK MAY REQUIRE ADDITIONAL SIGNS, DRUMS AND OTHER TRAFFIC CONTROL DEVICES, GRADING AND TEMPORARY PAVEMENT FOR PASSAGE OF PEDESTRIAN, VEHICULAR AND EMERGENCY TRAFFIC THROUGH THE WORK AREAS, BOTH DURING AND AFTER WORKING HOURS, TO MAINTAIN SUCH ACCESS.
7. REFLECTORIZED CONES SHALL BE A MINIMUM OF 36 INCHES IN HEIGHT.
8. CONES MAY BE USED IN LIEU OF DRUMS OUTSIDE OF TAPER AREAS.
9. THE CONTRACTOR SHALL NOTIFY EACH ABUTTER AT LEAST 48 HOURS IN ADVANCE OF THE START OF ANY WORK THAT WILL REQUIRE THE TEMPORARY CLOSURE OR RESTRICTION OF ACCESS.
10. FOR DROP-OFFS 3" OR LESS WITHIN THE CLEAR ZONE, CONDITION MAY BE MITIGATED WITH W8-9 (LOW SHOULDER) SIGN OR TEMPORARY CHANNELIZATION DEVICES. FOR DROP-OFFS GREATER THAN 3" BUT NO MORE THAN 36", DETERMINE WHETHER IT IS MORE COST EFFECTIVE TO INSTALL BOTH W8-9 SIGN AND TEMPORARY CHANNELIZATION DEVICES IN ACCORDANCE WITH MASSDOT WORK ZONE SAFETY GUIDE OR W8-9 SIGN WITH A 2H:1V (MIN) WEDGE OR TO REMOVE THE HAZARD. FOR DROP-OFFS 36" OR GREATER USE TEMPORARY BARRIER IN ACCORDANCE WITH MASSDOT WORK ZONE POSITIVE PROTECTION GUIDELINES.
11. CONSTRUCTION CLEAR ZONE SHALL BE IN ACCORDANCE WITH MASSDOT BOSTON TRAFFIC GUIDELINES AS FOLLOWS:
    4' IF POSTED SPEED IS LESS THAN 35 MPH
12. ALL TEMP BARRIERS SHALL MEET OR EXCEED MASH TL-2 REQUIREMENTS IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
13. THE CONTRACTOR SHALL PROVIDE TEMPORARY IMPACT ATTENUATORS TO PROTECT ALL BLUNT-ENDS OF TEMPORARY BARRIER OR AS REQUIRED BY THE ENGINEER. ALL TEMPORARY IMPACT ATTENUATORS SHALL BE DESIGNED TO MEET OR EXCEED MASH TEST LEVEL 2 (TL-2).
14. 11' MINIMUM LANE WIDTHS SHALL BE MAINTAINED UNLESS OTHERWISE NOTED.
15. SIGNS INSTALLED ON PORTABLE STANDS REQUIRE 12 INCH MINIMUM MOUNTING HEIGHT FROM THE ROADWAY SURFACE TO THE BOTTOM OF THE SIGN.
16. SIGNS INSTALLED ON PORTABLE STANDS PLACED AMONG CHANNELIZATION DEVICES REQUIRE A 36 INCH MINIMUM MOUNTING HEIGHT FROM THE ROADWAY SURFACE TO THE BOTTOM OF THE SIGN.
17. SIGNS MOUNTED ON POSTS REQUIRE A MINIMUM 84 INCH MOUNTING HEIGHT FROM THE ROADWAY OR SIDEWALK SURFACE TO THE BOTTOM OF THE SIGN. CONTRACTOR SHALL MAINTAIN A MINIMUM SIDEWALK HORIZONTAL CLEAR WIDTH OF 36" AT ALL TIMES.
18. ALL SIGNS SHALL BE MOUNTED ON THEIR OWN MASH CRASH TESTED SIGN SUPPORTS AND INSTALLED IN ACCORDANCE WITH THE MUTCD.SIGNS SHALL NOT BE MOUNTED TO OR LEANED AGAINST DRUMS OR CONES.
19. W21-7 SIGNS SHALL BE INSTALLED IN ADVANCE (100' MIN) OF AREAS WHERE UTILITY CASTINGS HAVE BEEN RAISED IN ADVANCE OF PAVING OPERATIONS OR AS REQUESTED BY THE ENGINEER.
20. W8-15 SIGNS SHALL BE INSTALLED IN ADVANCE (100' MIN) OF PAVEMENT MILLING AREAS OR AS REQUESTED BY THE ENGINEER.
21. CONTRACTOR SHALL SECURE WORK AREAS BY APPROPRIATE MEANS, TO PREVENT UNAUTHORIZED ACCESS AT ALL TIMES.
22. THERE IS NO DESIGNATED BICYCLE LANE ON THE ROADWAY WITHIN THE PROJECT LIMITS. BICYCLES ARE EXPECTED TO SHARE THE ROAD WITH GENERAL VEHICULAR TRAFFIC DURING STAGE 1. DURING STAGE 2, BICYCLES SHALL USE END-STATE BIKE FACILITIES ON THE EAST SIDE OF SHORE ROAD.



NOTE:
1. CONTRACTOR SHALL INSTALL W8-9 SIGN ON ALL ROADWAYS 350 FEET IN ADVANCE OF THE START OF DROP-OFF CONDITION.

TYPICAL ROADWAY DROP-OFF PROTECTION

SCALE: NTS



SECTION A-A

NOTES:
1. SQUARE OFF THE FULL WIDTH OF THE ROADWAY AT THE END OF WORK DAY.
2. ** CONTRACTOR SHALL INSTALL W8-1 AT LIMIT OF EXCAVATION AND A W8-3, W8-8, W8-15, OR W8-24 SIGN, AS APPROPRIATE, ON ALL ROADWAYS IN ADVANCE OF THE TRANSITION UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
3. R4-7b SIGNS AND DRUMS MAY BE OMITTED AT THE DISCRETION OF THE ENGINEER.

TEMPORARY PAVEMENT TRANSITION

SCALE: NTS

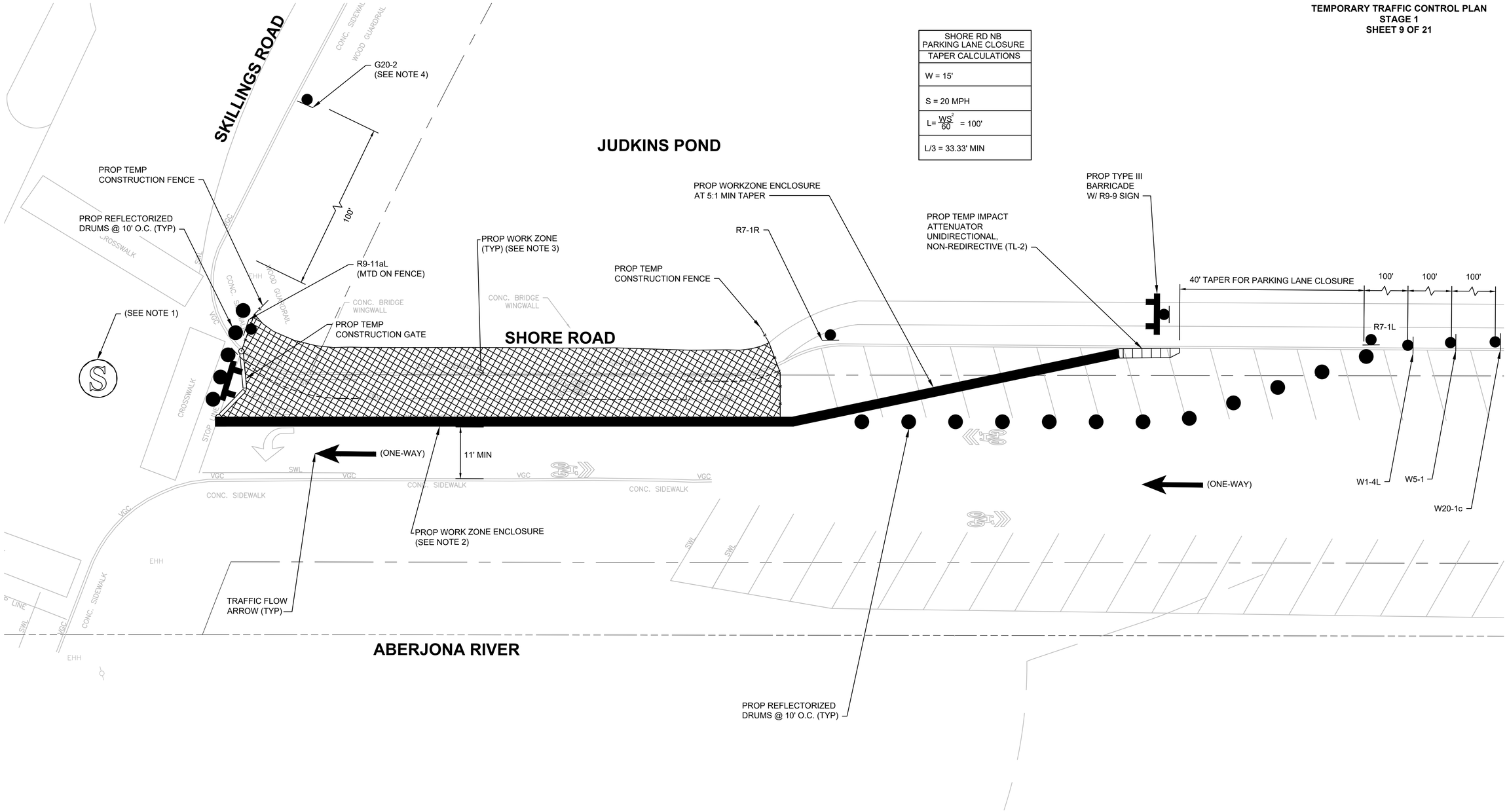
LEGEND	
S	TRAFFIC SIGNAL
●	REFLECTORIZED DRUM
	TEMPORARY CONSTRUCTION SIGN
▲	TRAFFIC CONE
	TYPE III BARRICADE
	WORKZONE ENCLOSURE
	TEMPORARY IMPACT ATTENUATOR (TYPE NOTED)
	WORK AREA (PUBLIC ACCESS RESTRICTED)
	TRANSITION/BUFFER AREAS
	TRAFFIC FLOW
	PEDESTRIAN ROUTE
	CONSTRUCTION FENCE
	TEMPORARY PEDESTRIAN BARRICADE
NTS	NOT TO SCALE
TTCP	TEMPORARY TRAFFIC CONTROL PLAN

LANE TAPER LENGTH FORMULAS	
L=	TAPER LENGTH IN FEET
W=	WIDTH OF ROADWAY TO BE SHIFTED OR REDIRECTED IN FEET
S=	POSTED SPEED LIMIT IN MPH
POSTED SPEED	
40 MPH OR LESS	
$L=\frac{WS^2}{60}$	

WINCHESTER
SHORE ROAD
TEMPORARY TRAFFIC CONTROL PLAN
STAGE 1
SHEET 9 OF 21

16421.00_HD(TTCP_STAGE1).DWG Plotted on 30-Apr-2025 2:05 PM

SHORE RD NB PARKING LANE CLOSURE
TAPER CALCULATIONS
W = 15'
S = 20 MPH
$L=\frac{WS^2}{60}$ = 100'
L/3 = 33.33' MIN



NOTES:

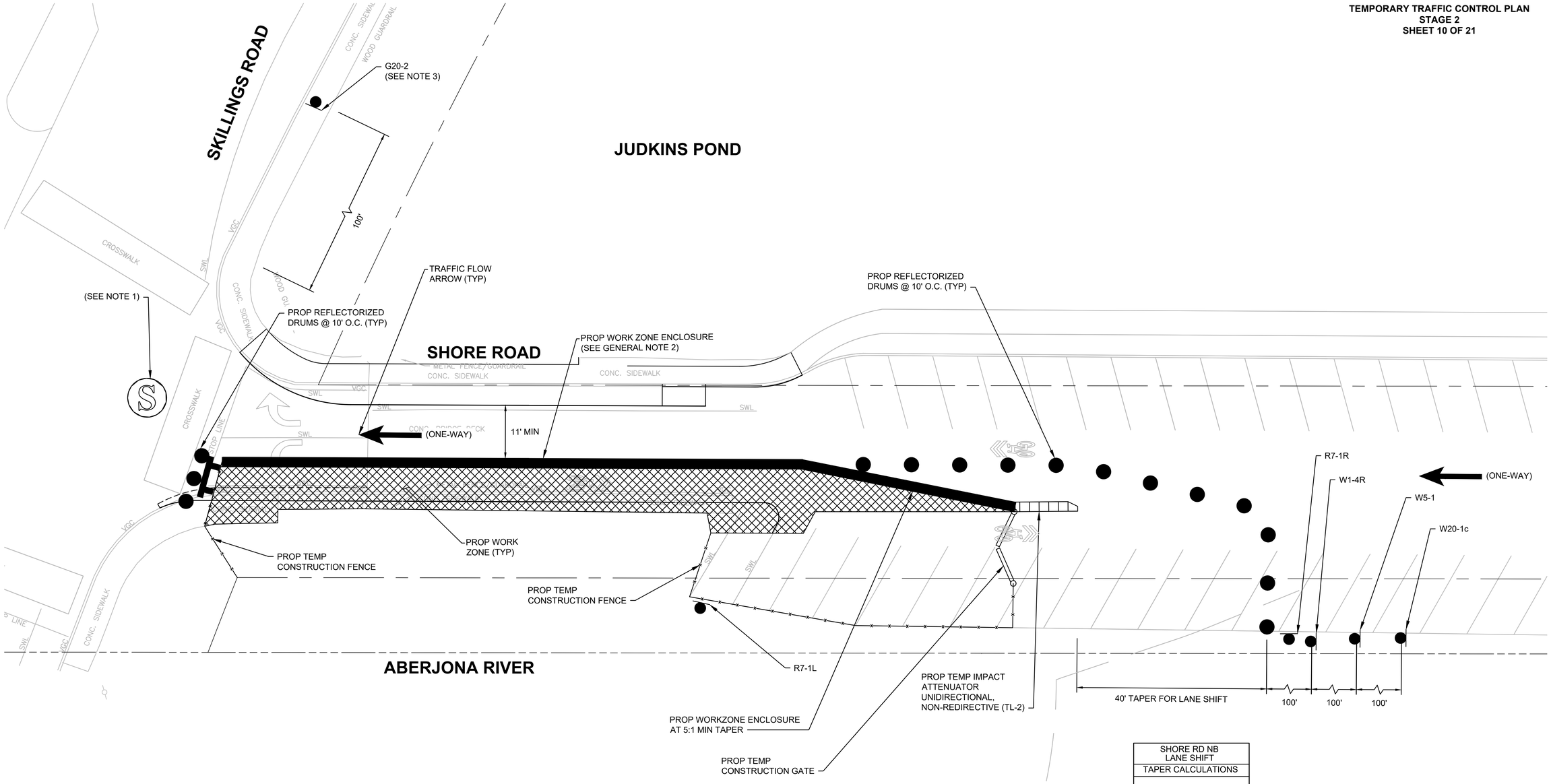
1. MAINTAIN EXISTING SIGNAL AT ALL TIMES.
2. PROPOSED WORK ZONE ENCLOSURE SHALL BE TEMPORARY CONCRETE BARRIER UNLESS APPROVED BY THE TOWN. USE OF THIS BARRIER IS TO PROVIDE PHYSICAL SEPARATION BETWEEN TRAFFIC AND WORK AREA AND DOES NOT GUARANTEE FULL PROTECTION OF ANY KIND BEHIND THE SAID BARRIER. BARRIER SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION. ALL BLUNT ENDS OF THE BARRIER SHALL BE PROTECTED BY AN APPROVED IMPACT ATTENUATOR AT ALL TIMES.
3. SIDEWALK SHALL BE CLOSED FOR THE DURATION OF THIS SETUP. REFER TO PEDESTRIAN DETOUR PLAN ON SHEET 11 FOR ADDITIONAL INFORMATION.
4. CONTRACTOR SHALL INSTALL G20-2 SIGN ALONG SKILLING ROAD WESTBOUND AT 100' SPACING.

0 10 20 30 40

SCALE: 1" = 10'

WINCHESTER
SHORE ROAD
TEMPORARY TRAFFIC CONTROL PLAN
STAGE 2
SHEET 10 OF 21

16421.00_HD(TTCP_STAGE2).DWG Plotted on 30-Apr-2025 2:06 PM



SHORE RD NB LANE SHIFT
TAPER CALCULATIONS
W = 11'
S = 20 MPH
$L=\frac{WS^2}{60}$ = 73.3'
L/2 = 33.66' MIN

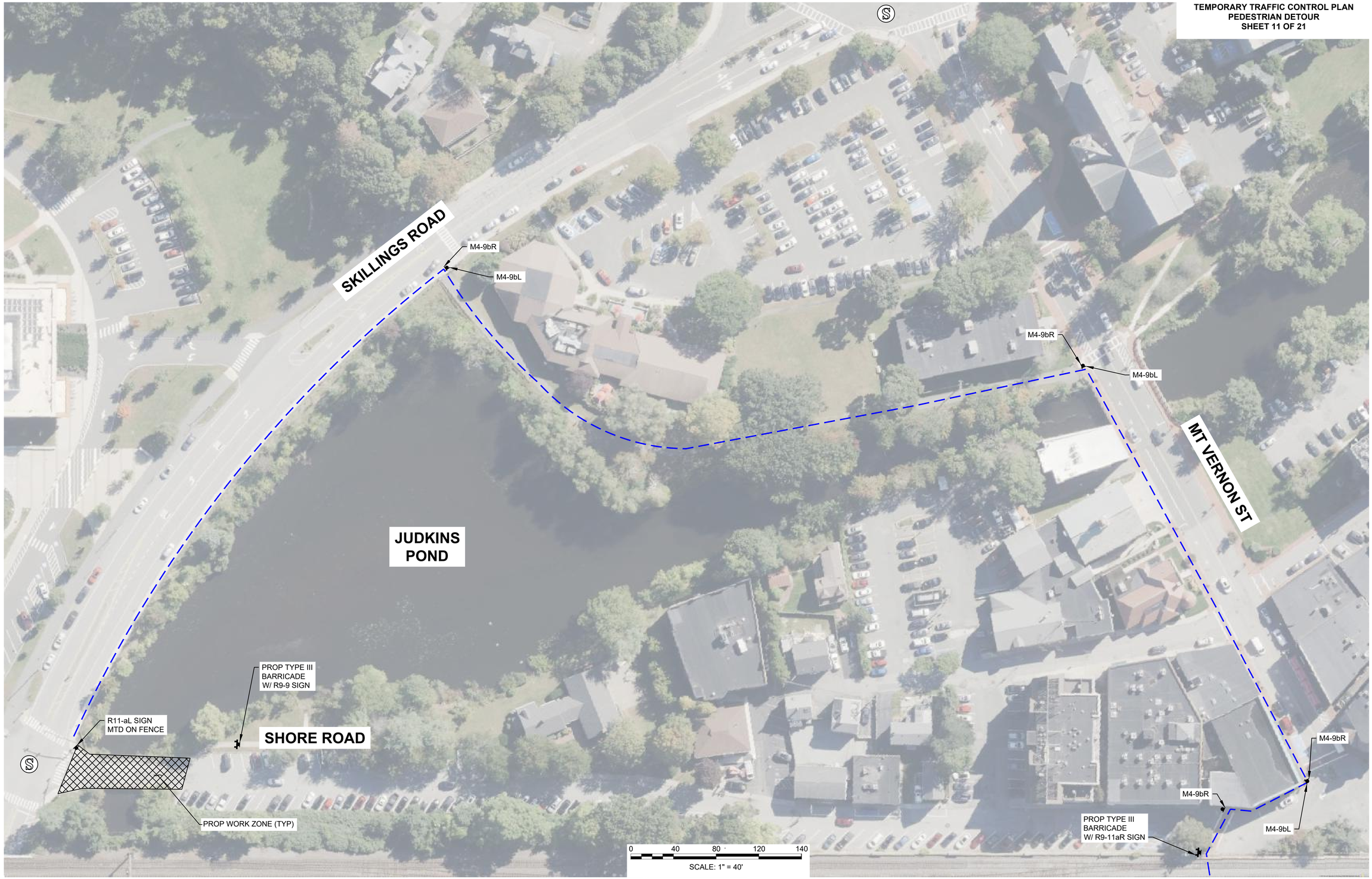
NOTES:

1. MAINTAIN EXISTING SIGNAL AT ALL TIMES.
2. PROPOSED WORK ZONE ENCLOSURE SHALL BE TEMPORARY CONCRETE BARRIER UNLESS APPROVED BY THE TOWN. USE OF THIS BARRIER IS TO PROVIDE PHYSICAL SEPARATION BETWEEN TRAFFIC AND WORK AREA AND DOES NOT GUARANTEE FULL PROTECTION OF ANY KIND BEHIND THE SAID BARRIER. BARRIER SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION. ALL BLUNT ENDS OF THE BARRIER SHALL BE PROTECTED BY AN APPROVED IMPACT ATTENUATOR AT ALL TIMES.
3. CONTRACTOR SHALL INSTALL G20-2 SIGN ALONG SKILLING WESTBOUND AT 100' SPACING.

0 10 20 30 40

SCALE: 1" = 10'

WINCHESTER
SHORE ROAD
TEMPORARY TRAFFIC CONTROL PLAN
PEDESTRIAN DETOUR
SHEET 11 OF 21



16421.00_HDI(TTCP_DETOUR).DWG Plotted on 30-Apr-2025 2:06 PM

WINCHESTER
SHORE ROAD
TEMPORARY TRAFFIC CONTROL PLAN
SIGN SUMMARY
SHEET 12 OF 21

16421.00_HD\TTCP_GEN\.DWG Plotted on 30-Apr-2025 2:06 PM

TEMPORARY TRAFFIC CONTROL SIGN SUMMARY

IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES)			COLOR			UNIT AREA (S.F.)
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.	BACK-GROUND	LEGEND	BORDER	
R4-7b	24"	30"	KEEP RIGHT	SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION"; AS AMENDED			WHITE	BLACK	BLACK	5.00
R7-1L	12"	18"	NO PARKING ANY TIME				WHITE	RED	RED	1.50
R7-1R	12"	18"	NO PARKING ANY TIME				WHITE	RED	RED	1.50
R9-9	24"	12"	SIDEWALK CLOSED				WHITE	BLACK	BLACK	2.00
R9-11L	24"	18"	SIDEWALK CLOSED AHEAD CROSS HERE				WHITE	BLACK	BLACK	3.00
R9-11R	24"	18"	SIDEWALK CLOSED AHEAD CROSS HERE				WHITE	BLACK	BLACK	3.00
R9-11aL	24"	12"	SIDEWALK CLOSED CROSS HERE				WHITE	BLACK	BLACK	2.00
R9-11aR	24"	12"	SIDEWALK CLOSED CROSS HERE				WHITE	BLACK	BLACK	2.00
W1-4L	36"	36"					FLUOR-ESCENT ORANGE	BLACK	BLACK	9.00
W1-4R	36"	36"					FLUOR-ESCENT ORANGE	BLACK	BLACK	9.00
W5-1	36"	36"	ROAD NARROWS				FLUOR-ESCENT ORANGE	BLACK	BLACK	9.00
W8-1	36"	36"	BUMP				FLUOR-ESCENT ORANGE	BLACK	BLACK	9.00
W8-3	36"	36"	PAVEMENT ENDS				FLUOR-ESCENT ORANGE	BLACK	BLACK	9.00
W8-8	36"	36"	ROUGH ROAD				FLUOR-ESCENT ORANGE	BLACK	BLACK	9.00

TEMPORARY TRAFFIC CONTROL SIGN SUMMARY (CONTINUED)

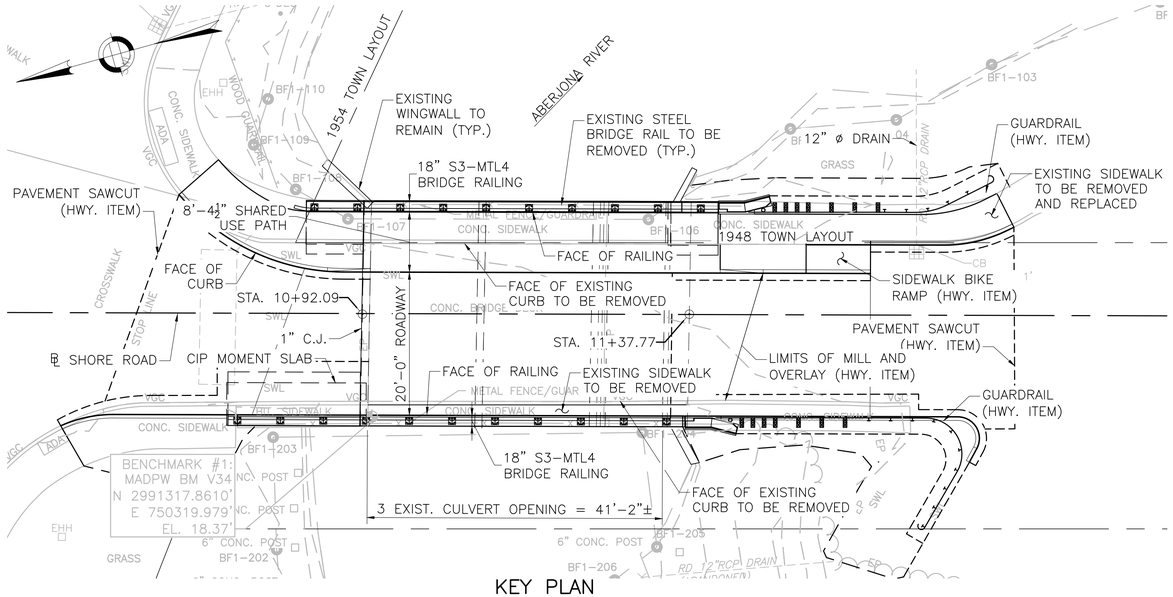
IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES)			COLOR			UNIT AREA (S.F.)
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.	BACK-GROUND	LEGEND	BORDER	
W8-9	36"	36"	LOW SHOULDER	SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION"; AS AMENDED			FLUOR-ESCENT ORANGE	BLACK	BLACK	9.00
W8-15	36"	36"	GROOVED PAVEMENT				FLUOR-ESCENT ORANGE	BLACK	BLACK	9.00
W8-24	36"	36"	STEEL PLATE AHEAD				FLUOR-ESCENT ORANGE	BLACK	BLACK	9.00
W20-1c	36"	36"	ROAD WORK AHEAD				FLUOR-ESCENT ORANGE	BLACK	BLACK	9.00
W21-7	36"	36"	UTILITY WORK AHEAD				FLUOR-ESCENT ORANGE	BLACK	BLACK	9.00
M4-9bL	30"	24"	DETOUR				FLUOR-ESCENT ORANGE	BLACK	BLACK	5.00
M4-9bR	30"	24"	DETOUR				FLUOR-ESCENT ORANGE	BLACK	BLACK	5.00
G20-2	36"	18"	END ROAD WORK				ESCENT ORANGE	BLACK	BLACK	

NOTES:
1. HIGH INTENSITY REFLECTIVE SHEETING SHALL BE USED FOR ALL SIGNS. SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION" FOR TEXT DIMENSIONS, AS AMENDED; THE 1977 MASSHIGHWAY DEPARTMENT CONSTRUCTION AND TRAFFIC STANDARD DETAILS, AS AMENDED, FOR SIGNS AND SUPPORTS; THE MASSHIGHWAY DEPARTMENT SIGN LISTINGS 1993 EDITION, AS AMENDED; THE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR MOUNTING REQUIREMENTS; AND THE 2017 MassDOT STANDARD SIGNS BOOK, AS AMENDED.
2. ALL SIGNS SHOWN GRAPHICALLY FOR INFORMATION ONLY. SIGN VENDOR SHALL FABRICATE ALL SIGNS IN ACCORDANCE WITH THE APPLICABLE STANDARDS.

WINCHESTER
SHORE ROAD

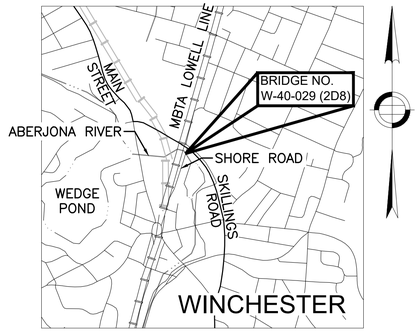
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	13	21
PROJECT FILE NO.		-	

KEY PLAN, PROFILE & INDEX



KEY PLAN

SCALE: 1" = 10'



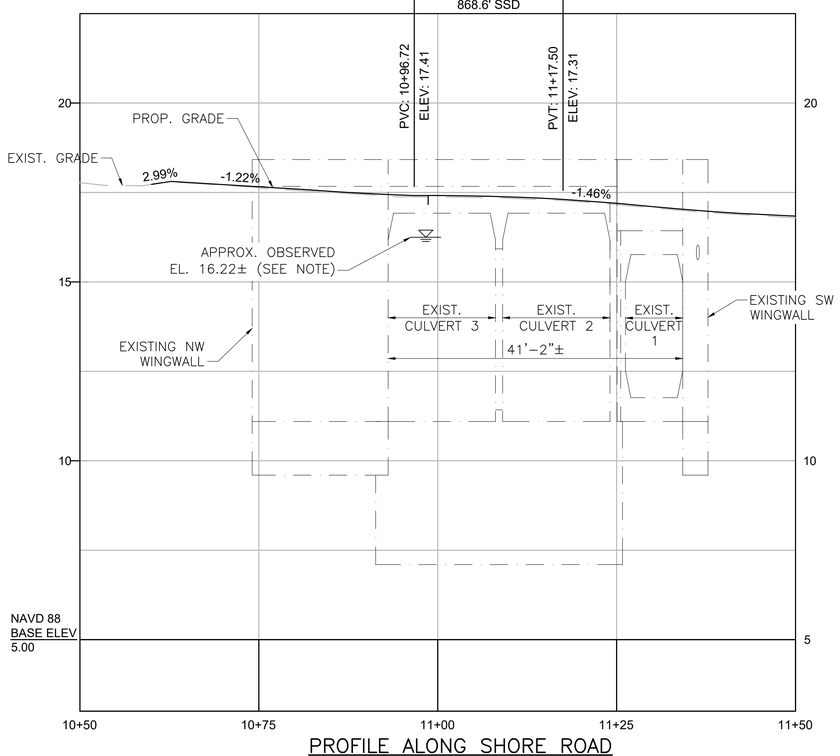
LOCUS

SCALE: 1" = 1000'

INDEX OF SHEETS

1 KEY PLAN, PROFILE & INDEX
2 GENERAL NOTES
3 GENERAL PLAN
4 DECK DETAILS
5 SUBSTRUCTURE REPAIR DETAILS
6 MISCELLANEOUS DETAILS
7 PRECAST HIGHWAY GUARDRAIL TRANSITION (1 OF 2)
8 PRECAST HIGHWAY GUARDRAIL TRANSITION (2 OF 2)
9 S3-MTL4 BRIDGE RAILING

HIGH POINT STA = 10+98.66
PVI STA = 11+07.11
PVI ELEV = 17.43
A.D. = -1.26%
K = 16.53
21' VC
868.6' SSD



PROFILE ALONG SHORE ROAD

HORIZ. SCALE: 1" = 10'
VERT. SCALE: 1" = 2'

BRIDGE QUANTITIES (NOT GUARANTEED)

NO.	ITEM	QTY	UNIT
102.01	SELECTIVE CLEARING AND GRUBBING	1	LS
114.1	DEMOLITION OF SUPERSTRUCTURE OF BRIDGE NO. W-40-029 (2D8)	1	LS
127.21	SCARIFYING REINFORCED CONCRETE SURFACE	1	CY
127.41	REINFORCED CONCRETE DECK EXCAVATION (PARTIAL DEPTH)	2	CY
151.	GRAVEL BORROW	11	CY
450.41	SUPERPAVE BASE COURSE – 15.0 (SBC-25.0)	5	TON
450.231	SUPERPAVE SURFACE COURSE – 12.5 POLYMER (SSC-12.5-P)	48	TON
909.2	CEMENTITIOUS MORTAR FOR PATCHING	675	SF
991.1	CONTROL OF WATER – STRUCTURE NO. W-40-029 (2D8)	1	LS
992.1	ALTERATION TO BRIDGE STRUCTURE NO. W-40-029 (2D8)	1	LS

APRIL 30, 2025	ISSUED FOR BID

PROPOSED SAFETY IMPROVEMENTS
WINCHESTER
SHORE ROAD
OVER ABERJONA RIVER

vhb
260 Arsenal PL #2
PO Box 9151
Watertown, MA 02471
617.924.1770

16421.00_BR(FIRST_SHEET).DWG Plotted on 30-Apr-2025 2:07 PM

GENERAL NOTES

DESIGN:

IN ACCORDANCE WITH THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS LRFD BRIDGE DESIGN SPECIFICATIONS 9TH EDITION, 2020, FOR HL–93 LOADING.

IN ACCORDANCE WITH THE 2009 AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS LRFD GUIDE SPECIFICATIONS FOR THE DESIGN OF PEDESTRIAN BRIDGES FOR 90 PSF PEDESTRIAN LOADING.

MASSDOT BENCH MARK:

BENCHMARK #1: MADPW BM V34 AT NORTHWEST CORNER
N 2991317.8610', E 750319.979', EL. 18.37'

ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM (NAVD88) OF 1988.

SURVEY:

TOPOGRAPHICAL INFORMATION FROM A SURVEY BY VANASSE HANGEN BRUSTLIN, INC., WATERTOWN, MASSACHUSETTS IN JULY 2024.

SCALES:

SCALES NOTED ON THE PLANS ARE NOT APPLICABLE TO REDUCED SIZE PRINTS. DIVIDE SCALES BY 2 FOR HALF–SIZE PRINTS (A3).

STRUCTURAL ELEMENTS:

STRUCTURAL ELEMENTS MAY BE ALTERED, IF NECESSARY, TO SUIT CONDITIONS ENCOUNTERED DURING CONSTRUCTION, WITH THE APPROVAL OF THE ENGINEER.

ANCHOR BOLTS:

ALL ANCHOR BOLTS SHALL BE SET BY TEMPLATE BEFORE THE CONCRETE IS PLACED.

CONCRETE:

UNLESS OTHERWISE SPECIFIED, ALL CONCRETE SHALL BE 5000 HP CONCRETE.

REINFORCEMENT:

REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M31 GRADE 60. UNLESS OTHERWISE NOTED ON THE CONSTRUCTION DRAWINGS, ALL BARS SHALL BE LAPPED AS FOLLOWS:

MODIFICATION CONDITION	#4 BARS	#5 BARS	#6 BARS
1. NONE	16"	17"	21"
2. 12" OF CONCRETE BELOW BAR	18"	22"	27"
3. EPOXY COATED BARS, COVER $<3d_b$, OR CLEAR SPACING $< 6d_b$	21"	26"	31"
4. COATED BARS, ALL OTHER CASES	17"	21"	25"
5. CONDITION 2. AND 3.	23"	29"	35"
6. CONDITION 2. AND 4.	21"	27"	32"

ALL OTHER BARS SHALL BE LAPPED AS SHOWN ON THE CONSTRUCTION DRAWINGS.

GEOTECHNICAL REPORT:

EXISTING SOIL INFORMATION IS UNAVAILABLE.

CONSTRUCTION REQUIREMENTS AND PROCEDURES:

THE CONTRACTOR SHALL TAKE THE PROPER PRECAUTIONS TO ENSURE THE STABILITY AND SAFE PERFORMANCE OF ALL STRUCTURAL ELEMENTS DURING DEMOLITION AND CONSTRUCTION. REFER TO APPROVED DEMOLITION/ERECTION PLANS.

EXISTING CONDITIONS:

EXISTING CONDITIONS ARE DERIVED FROM LIMITED INFORMATION AND ARE NOT GUARANTEED. THE CONTRACTOR SHALL DETERMINE AND ESTABLISH THE GEOMETRY OF THE EXISTING STRUCTURE AT ALL RELEVANT LOCATIONS BY FIELD MEASUREMENTS AND SURVEY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ADEQUACY AND ACCURACY THEREOF. THE CONTRACTOR SHALL NOT ORDER ANY MATERIAL OR COMMENCE ANY CONSTRUCTION UNTIL THE REQUIRED MEASUREMENTS HAVE BEEN MADE AND ANY APPARENT CONFLICTS WITH THE PROPOSED CONSTRUCTION HAVE BEEN BROUGHT TO THE ATTENTION OF THE ENGINEER.

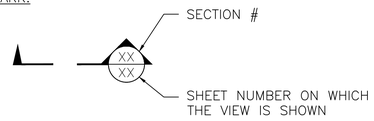
UTILITIES:

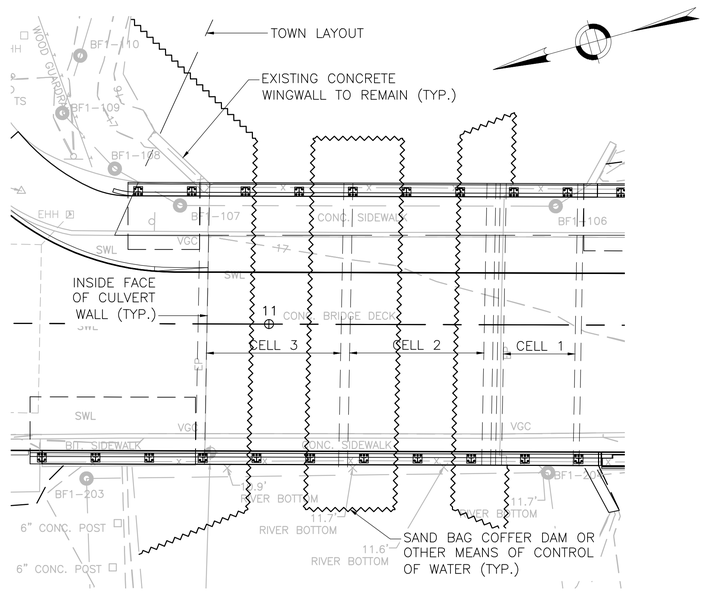
THE EXISTING UTILITIES HAVE BEEN DISPLAYED FROM THE BEST AVAILABLE INFORMATION. THE EXACT LOCATIONS AND DEPTHS ARE UNKNOWN AND SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO THE BEGINNING OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION FROM DAMAGE FOR ALL THE EXISTING UTILITIES.

CONSTRUCTION JOINTS:

CONSTRUCTION JOINTS, OTHER THAN THOSE SHOWN ON THE PLANS, WILL NOT BE PERMITTED WITHOUT THE APPROVAL OF THE ENGINEER.

SECTION MARK:





CONTROL OF WATER PLAN

SCALE: $\frac{1}{8}$" = 1'–0"

CONTROL OF WATER NOTES:

1. THE CONTROL OF WATER SHOWN IS CONCEPTUAL. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT A WATER CONTROL PLAN TO THE ENGINEER FOR APPROVAL. THE WATER CONTROL PLAN SHALL DEFINE AND DETAIL THE METHODS FOR CONTROL OF WATER AND TYPE OF INSTALLATION TO BE USED.
2. CONTROL OF WATER PLAN SHALL INCLUDE MEANS AND METHODS FOR STAGING ONE COFFER DAM AT A TIME.
3. CONTRACTOR SHALL PERFORM ALL PROPOSED WORK IN COMPLIANCE WITH THE ORDER OF CONDITIONS ISSUED BY THE WINCHESTER CONSERVATION COMMISSION.
4. CONSTRUCTION SHALL BE COMPLETED DURING THE DRY SEASON. SEE SPECIFICATIONS FOR CONTROL OF WATER REQUIREMENTS.

WINCHESTER
SHORE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	14	21
PROJECT FILE NO.		-	

GENERAL NOTES

DATE	DESCRIPTION
APRIL 30, 2025	ISSUED FOR BID
USE ONLY PRINTS OF LATEST DATE	

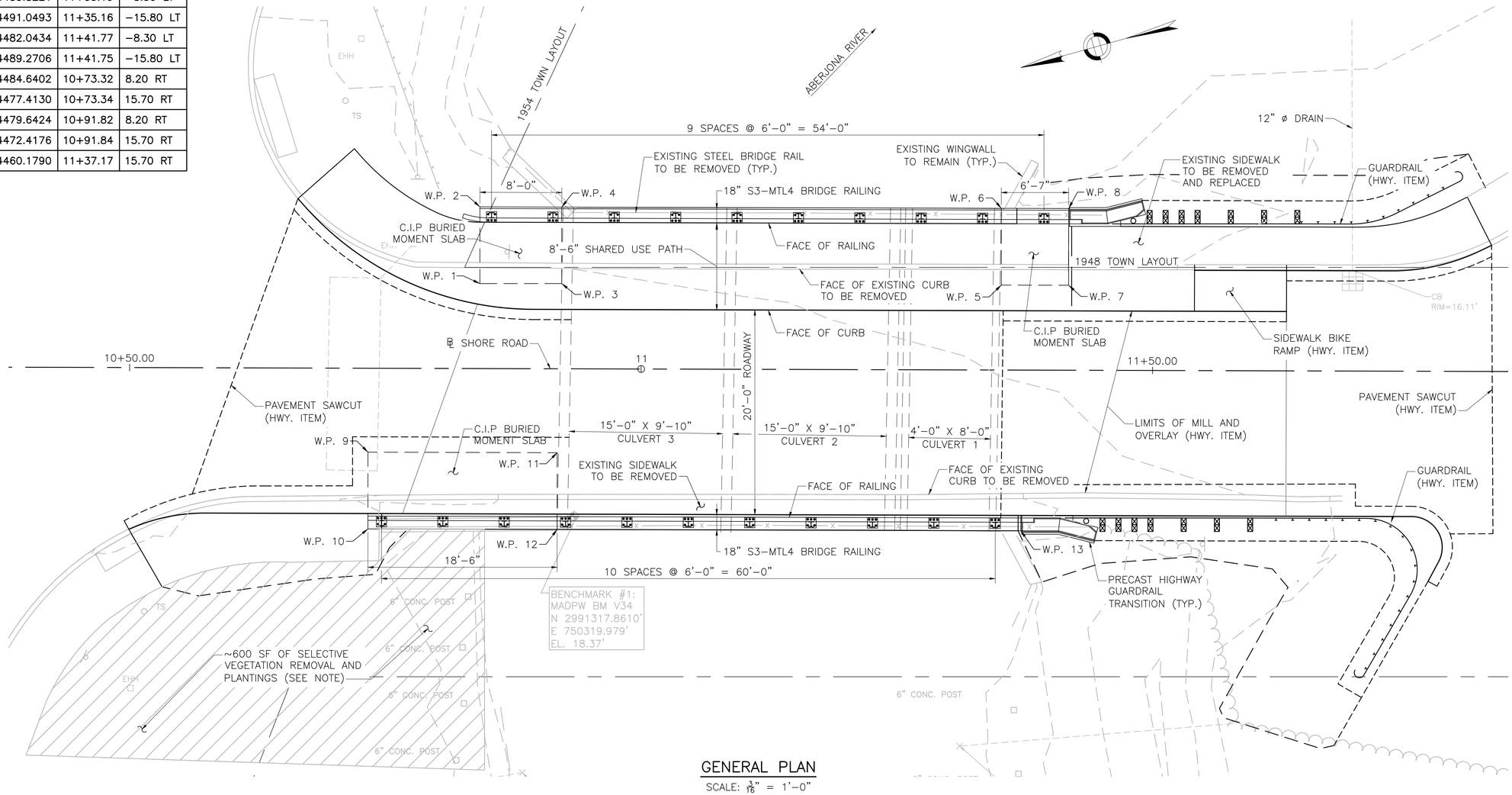
16421.00_BR(NOTES).DWG Plotted on 30-Apr-2025 2:29 PM

WINCHESTER
SHORE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	15	21
PROJECT FILE NO.		-	

GENERAL PLAN

POINT TABLE				
POINT NO.	NORTHING	EASTING	STATION	OFFSET
W.P. 1	2991320.6483	754497.5833	10+84.22	−8.30 LT
W.P. 2	2991318.6439	754504.8107	10+84.20	−15.80 LT
W.P. 3	2991312.9393	754495.4453	10+92.22	−8.32 LT
W.P. 4	2991310.9398	754502.6502	10+92.20	−15.80 LT
W.P. 5	2991271.5760	754483.8221	11+35.19	−8.30 LT
W.P. 6	2991269.5716	754491.0493	11+35.16	−15.80 LT
W.P. 7	2991265.2335	754482.0434	11+41.77	−8.30 LT
W.P. 8	2991263.2291	754489.2706	11+41.75	−15.80 LT
W.P. 9	2991335.5983	754484.6402	10+73.32	8.20 RT
W.P. 10	2991337.6027	754477.4130	10+73.34	15.70 RT
W.P. 11	2991317.7868	754479.6424	10+91.82	8.20 RT
W.P. 12	2991319.7905	754472.4176	10+91.84	15.70 RT
W.P. 13	2991276.1509	754460.1790	11+37.17	15.70 RT



GENERAL PLAN

SCALE: $\frac{3}{16}$" = 1'−0"

NOTES:

1. SELECTIVE VEGETATION REMOVAL AND PLANTINGS TO BE IN ACCORDANCE WITH THE ORDER OF CONDITIONS ISSUED BY THE WINCHESTER CONSERVATION COMMISSION.
2. INVASIVE VINES SHALL BE REMOVED BY HAND IN THE AREA LOCATED NORTHWEST OF THE PROPOSED WORK.
3. NO LESS THAN 10 NATIVE SPECIES OF SHRUBS SHALL BE PLANTED IN THE AREA LOCATED NORTHWEST OF THE PROPOSED WORK. SHRUBS SHALL INCLUDE (3) SWEET PEPPERBUSH (CLETHRA ALNIFOLIA), (3) GREY DOGWOOD (CORNUS RACEMOSA), AND (4) BLACK CHOKEBERRY (PHOTINIA MELANOCARPA).

APRIL 30, 2025	ISSUED FOR BID
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

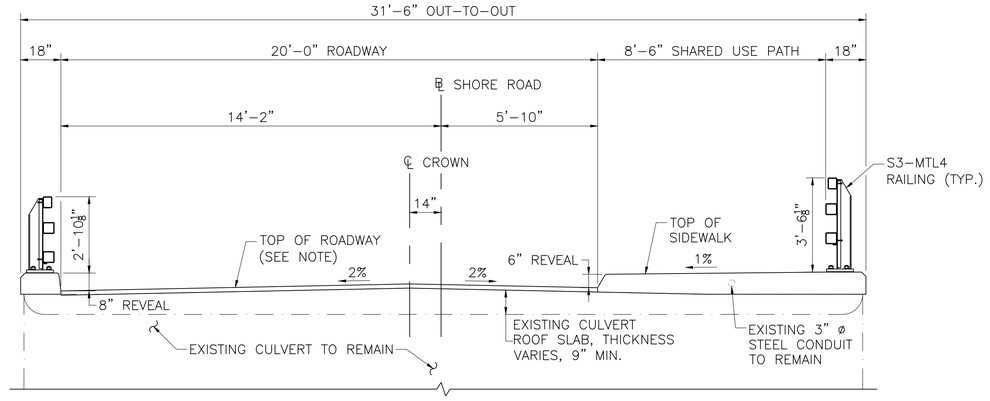
16421.00_BR(GEN PLAN).DWG Plotted on 30-Apr-2025 2:07 PM

WINCHESTER
SHORE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	16	21
PROJECT FILE NO.		-	

DECK DETAILS

16421.00_BR(DETAILS).DWG Plotted on 30-Apr-2025 2:07 PM



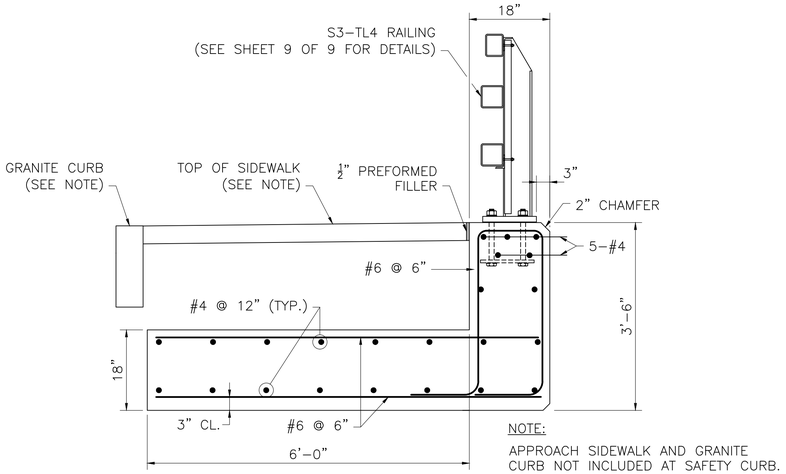
TYPICAL SECTION

SCALE: ⅜" = 1'–0"

NOTE:

AT CELL 1, APPLY 2" SUPERPAVE SURFACE COURSE OVER 4" SUPERPAVE BASE COURSE OVER 2" GRAVEL BORROW OVER MEMBRANE WATERPROOFING.

AT CELLS 2 & 3, APPLY 2" SURFACE COURSE OVER MEMBRANE WATERPROOFING.

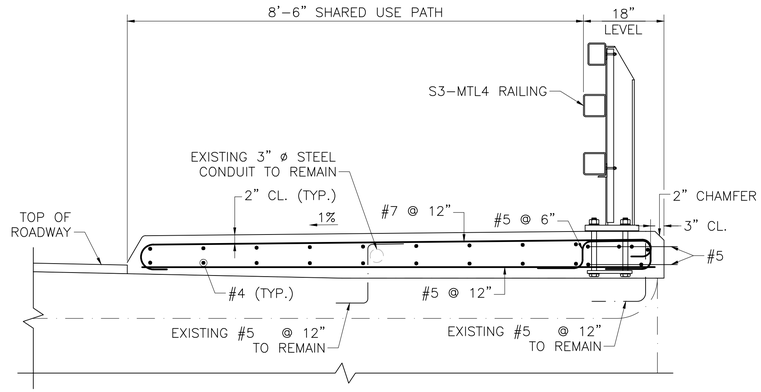


NOTE:

APPROACH SIDEWALK AND GRANITE CURB NOT INCLUDED AT SAFETY CURB.

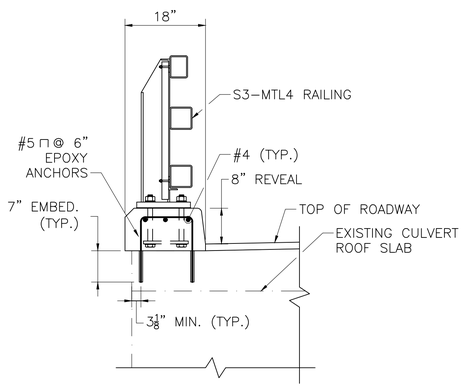
MOMENT SLAB TYPICAL SECTION

SCALE: ¾" = 1'–0"



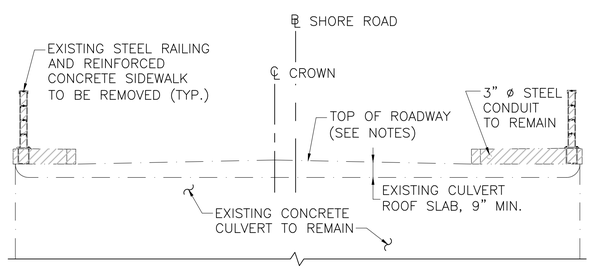
SIDEWALK SECTION

SCALE: ¾" = 1'–0"



SIDEWALK SECTION

SCALE: ¾" = 1'–0"


℄ SHORE ROAD
EXISTING STEEL RAILING AND REINFORCED CONCRETE SIDEWALK TO BE REMOVED (TYP.)
℄ CROWN
TOP OF ROADWAY (SEE NOTES)
3" ø STEEL CONDUIT TO REMAIN
EXISTING CULVERT ROOF SLAB, 9" MIN.
EXISTING CONCRETE CULVERT TO REMAIN

LIMITS OF DEMOLITION

SCALE: ¼" = 1'–0"

NOTES:

1. CONTRACTOR TO REMOVE ALL DETERIORATED CONCRETE AND ASPHALT PATCHING FROM THE DECK SURFACE AND DECK EDGES DIRECTED BY THE ENGINEER.
2. AREAS OF REMOVAL SHALL BE PATCHED WITH 5000 PSI CONCRETE. SUPPLEMENTAL EPOXY COATED REINFORCEMENT SHALL BE INSTALLED IF NECESSARY.

LEGEND

▨ LIMITS OF DEMOLITION

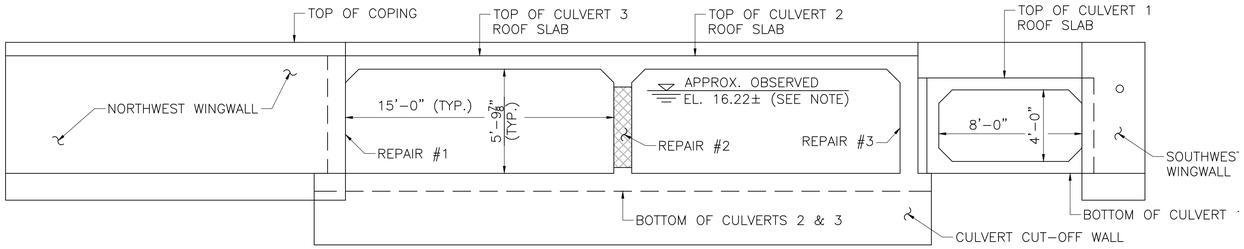
APRIL 30, 2025	ISSUED FOR BID
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

WINCHESTER
SHORE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	17	21
PROJECT FILE NO.		-	

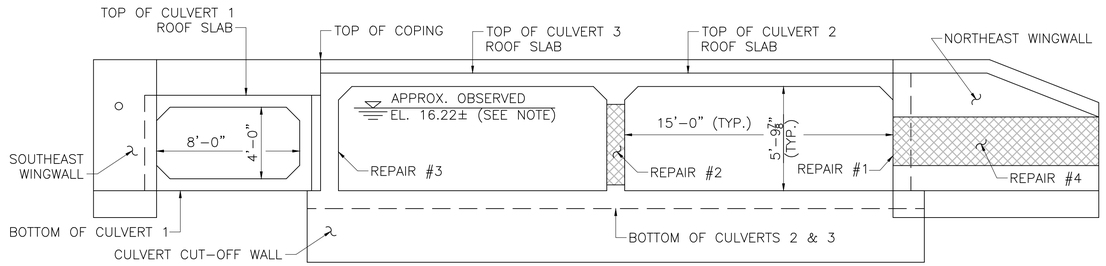
SUBSTRUCTURE REPAIR DETAILS

164210_BR(DETAILS).DWG Plotted on 30-Apr-2025 2:07 PM



ELEVATION (LOOKING EAST)

SCALE: ¼" = 1'-0"



ELEVATION (LOOKING WEST)

SCALE: ¼" = 1'-0"

NOTE:

OBSERVED WATER ELEVATION IS APPROXIMATE. INFORMATION WAS OBTAINED BY THE MASSDOT ROUTINE UNDERWATER INSPECTION REPORT DATED JANUARY 21, 2022.

REPAIR SCHEDULE

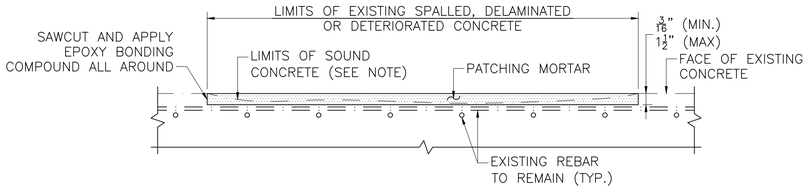
REPAIR #	APPROX. VOLUME	DESCRIPTION
1	1 CY	SCARIFY AND PATCH ALONG ENTIRE LENGTH OF CULVERT 3 SIDEWALL (INSIDE FACE)
2	2 CY	SCARIFY AND PATCH UPSTREAM NOSE, ENTIRE LENGTH OF CULVERTS 2 & 3 SIDEWALLS AND DOWNSTREAM NOSE
3	1 CY	SCARIFY AND PATCH ALONG ENTIRE LENGTH OF CULVERT 2 SIDEWALL (INSIDE FACE)
4	1 CY	SCARIFY AND PATCH ALONG ENTIRE LENGTH OF WINGWALL

CONCRETE REPAIR NOTES:

1. EXISTING REINFORCING THAT HAS LOST 25% OR MORE OF ITS ORIGINAL DIAMETER SHALL BE SUPPLEMENTED BY NEW EPOXY COATED BARS PLACED PARALLEL TO EXISTING REINFORCING.
2. DETAILS ARE RELEVANT FOR ALL REPAIR LOCATIONS.
3. DETERIORATED CONCRETE SHALL BE REMOVED TO A SOUND SUBSTRATE OR A MINIMUM OF 1" BEHIND REINFORCING STEEL.
4. ALL REINFORCING STEEL EXPOSED BY CONCRETE REMOVAL SHALL BE CLEANED OF ALL LOOSE RUST BY SANDBLASTING, WIRE BRUSHING, OR BY MACHINE WIRE BRUSHING.
5. THE SURFACES TO RECEIVE THE REPAIR MATERIAL SHALL BE FREE OF OIL, SOLVENT, GREASE, DIRT, LOOSE PARTICLES AND FOREIGN MATTER. CLEANING OF THE REPAIR AREAS SHALL BE PERFORMED BY ABRASIVE BLASTING (NOT MORE THAN 36 HOURS AHEAD OF THE REPAIR PLACEMENT) OR OTHER METHODS APPROVED BY THE ENGINEER.
6. ALL EXISTING REINFORCING STEEL AND CONCRETE SURFACES SHALL BE COATED WITH EPOXY BONDING AGENT AND CORROSION INHIBITOR AFTER CLEANING.
7. CONCRETE REPAIR MATERIAL SHALL BE PLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
8. PARTIAL DEPTH AND DECK REPAIRS MATERIAL SHALL BE 5000 PSI, ⅜ INCH, 710 HP CEMENT CONCRETE.

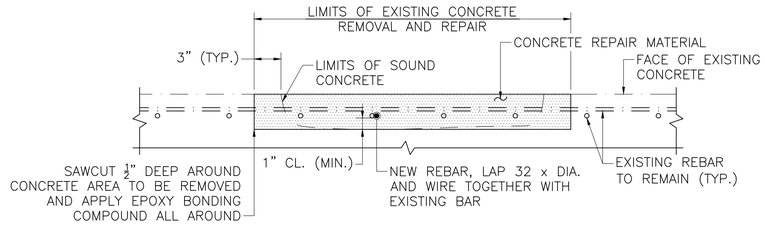
SUGGESTED CONCRETE REPAIR SEQUENCE:

1. PRIOR TO REMOVING DETERIORATED CONCRETE, THE CONTRACTOR SHALL PROVIDE ACCESS TO ALL WORK AREAS. USING THE CONTRACT DRAWINGS AS A GUIDE, THE ENGINEER AND CONTRACTOR SHALL HAMMER SOUND ALL WORK AREAS AND MARK THE LIMITS OF CONCRETE TO BE REMOVED.
2. THE LIMITS OF CONCRETE REMOVAL AS MARKED ON THE STRUCTURE SHALL BE USED AS A GUIDE FOR SAWCUTTING TO A ½" DEPTH.
3. EQUIPMENT USED FOR REMOVAL OF UNSOUND CONCRETE SHALL BE CHIPPING HAMMERS WEIGHING A MAXIMUM OF 15 POUNDS. ONLY CHISEL POINT BITS WILL BE ALLOWED.
4. THE CONCRETE SHALL BE FINISHED TO CONFORM TO THE LINE, GRADE, SURFACE TEXTURE, AND APPEARANCE OF THE ORIGINAL CONCRETE SURFACE.


LIMITS OF EXISTING SPALLED, DELAMINATED OR DETERIORATED CONCRETE
SAWCUT AND APPLY EPOXY BONDING COMPOUND ALL AROUND
LIMITS OF SOUND CONCRETE (SEE NOTE)
PATCHING MORTAR
⅜" (MIN.)
1½" (MAX)
FACE OF EXISTING CONCRETE
EXISTING REBAR TO REMAIN (TYP.)

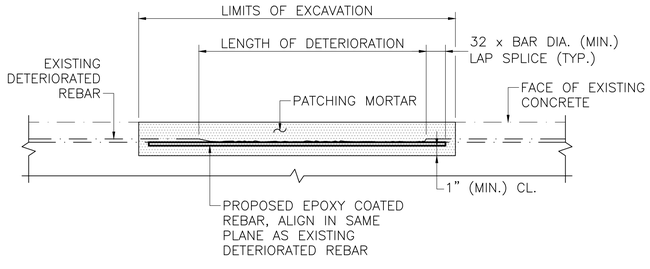
SHALLOW DEPTH REPAIR DETAIL

SCALE: 1½" = 1'-0"


LIMITS OF EXISTING CONCRETE REMOVAL AND REPAIR
3" (TYP.)
LIMITS OF SOUND CONCRETE
CONCRETE REPAIR MATERIAL
FACE OF EXISTING CONCRETE
SAWCUT ½" DEEP AROUND CONCRETE AREA TO BE REMOVED AND APPLY EPOXY BONDING COMPOUND ALL AROUND
1" CL. (MIN.)
NEW REBAR, LAP 32 x DIA. AND WIRE TOGETHER WITH EXISTING BAR
EXISTING REBAR TO REMAIN (TYP.)

PARTIAL DEPTH REPAIR DETAIL

SCALE: 1½" = 1'-0"


LIMITS OF EXCAVATION
LENGTH OF DETERIORATION
32 x BAR DIA. (MIN.) LAP SPLICE (TYP.)
EXISTING DETERIORATED REBAR
PATCHING MORTAR
FACE OF EXISTING CONCRETE
1" (MIN.) CL.
PROPOSED EPOXY COATED REBAR, ALIGN IN SAME PLANE AS EXISTING DETERIORATED REBAR

REBAR REPAIR DETAIL

SCALE: 1½" = 1'-0"

CONCRETE REPAIR TYPES

CONDITION			REPAIR TYPE	
DEPTH (IN)	AREA (SF)	EXPOSED REBAR	EXCAVATE BEYOND REBAR	TYPE OF REPAIR
≤ 1½	≤ 7	NO	NO	SHALLOW
≤ 1½	> 7	NO	YES	PARTIAL
≤ 1½	–	YES	YES	PARTIAL
> 1½	–	–	YES	PARTIAL

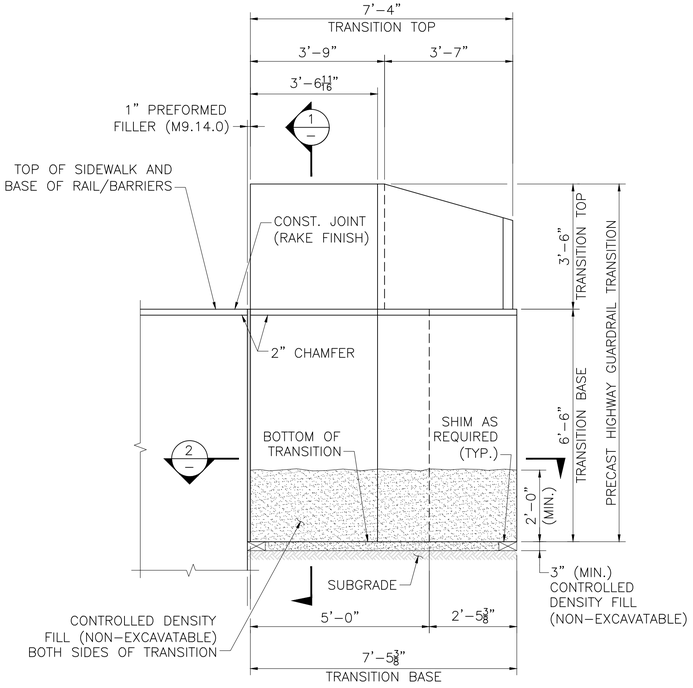
DATE	DESCRIPTION
APRIL 30, 2025	ISSUED FOR BID
USE ONLY PRINTS OF LATEST DATE	

WINCHESTER
SHORE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	17	21
PROJECT FILE NO.		-	

MISCELLANEOUS DETAILS

16421.00_BR(DETAILS).DWG Plotted on 30-Apr-2025 2:07 PM

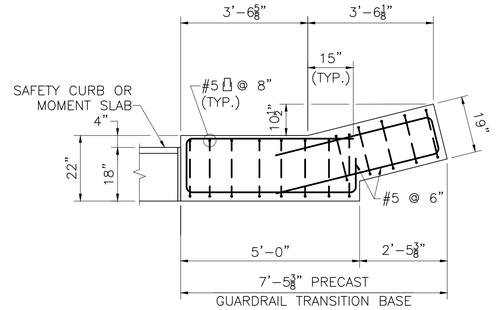


PRECAST GUARDRAIL TRANSITION ELEVATION

SCALE: 1/2" = 1'-0"

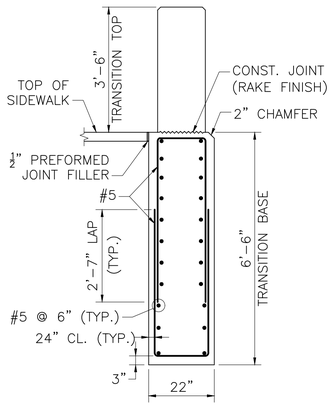
NOTES:

1. THE SOIL SHALL BE EXCAVATED TO THE GRADE OF 3" (MIN.) BELOW THE INTENDED BOTTOM OF THE GUARDRAIL TRANSITION BASE AND TO A HEIGHT OF 2'-0" (MIN.) ON ALL SIDES OF THE TRANSITION BASE TO FORM A TRENCH IN WHICH TO SET THE TRANSITION.
2. CONTRACTOR SHALL SET THE PRECAST GUARDRAIL TRANSITION TO THE REQUIRED ELEVATION AND ALIGNMENT, AND BACKFILL GUARDRAIL TRANSITION WITH CONTROLLED DENSITY FILL (NON-EXCAVATABLE) TO THE ELEVATION SHOWN.
3. BACKFILL THE REMAINDER OF EXCAVATION WITH GRAVEL BORROW, WHICH SHALL BE THOROUGHLY COMPACTED IN 12" LIFTS.
4. AFTER CONTROLLED DENSITY FILL (NON-EXCAVATABLE) HAS SET FILL THE GAPS BETWEEN GUARDRAIL TRANSITION AND BLOCK-OUT IN BACKWALL AND ABUTMENT WITH NON-SHRINK GROUT UP TO THE TOP OF BACKWALL.
5. THE REST OF REINFORCEMENT IS NOT SHOWN FOR CLARITY.



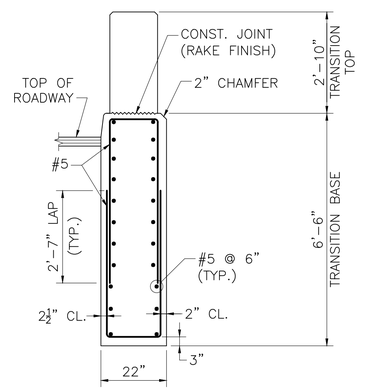
NOTE:
SAFETY CURB/MOMENT SLAB REINFORCEMENT NOT SHOWN FOR CLARITY.

SECTION 2 / SCALE: 1/2" = 1'-0"



NOTE:
REINFORCEMENT OF THE TRANSITION TOP IS NOT SHOWN FOR CLARITY.

SECTION AT SIDEWALK

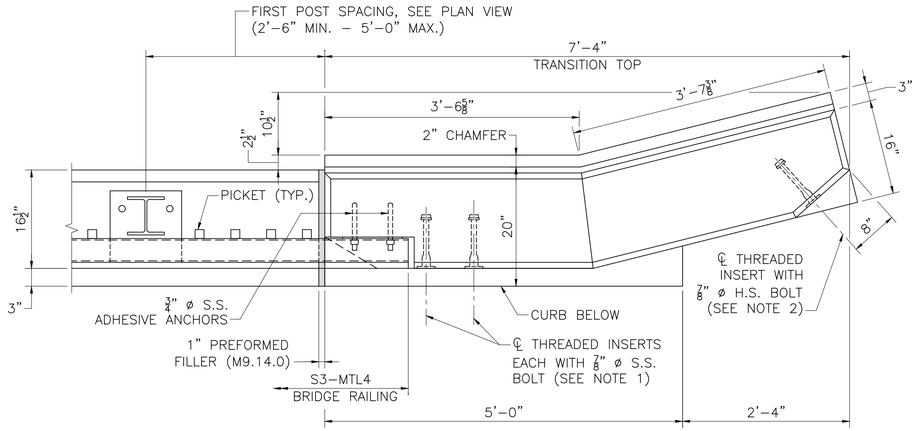


NOTE:
REINFORCEMENT OF THE TRANSITION TOP IS NOT SHOWN FOR CLARITY.

SECTION AT SAFETY CURB

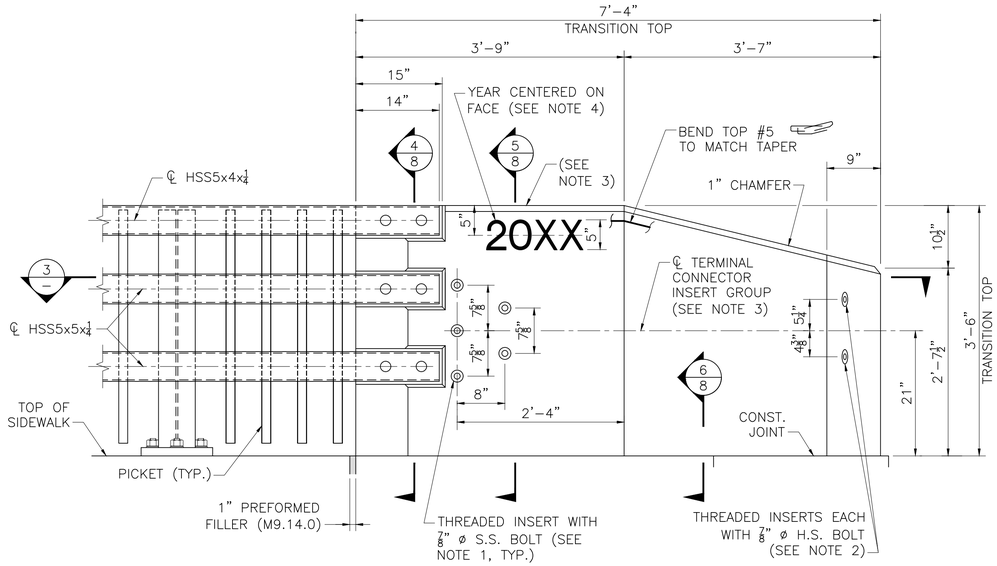
SECTION 1 / SCALE: 1/2" = 1'-0"

APRIL 30, 2025	ISSUED FOR BID
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	



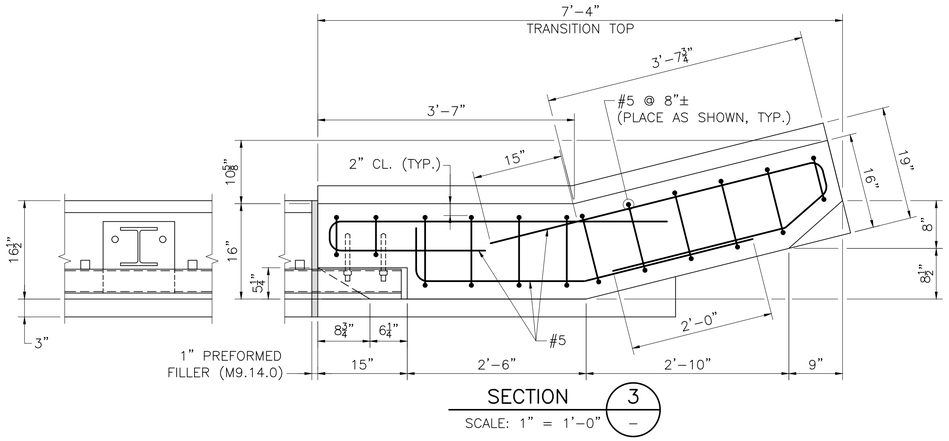
PLAN AT SAFETY CURB

SCALE: 1" = 1'-0"



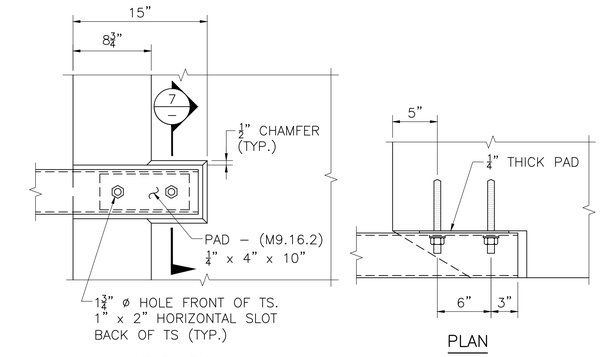
ELEVATION AT SIDEWALK

SCALE: 1" = 1'-0"



SECTION 3

SCALE: 1" = 1'-0"

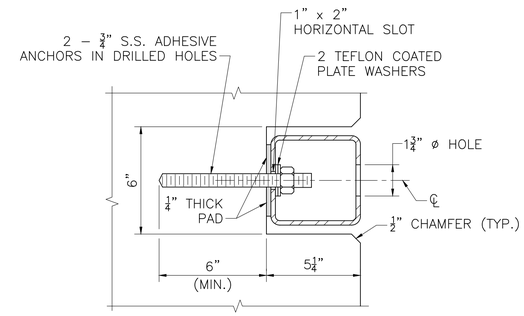


ELEVATION

PLAN

RAIL ATTACHMENT

SCALE: 1½" = 1'-0"



SECTION 7

SCALE: 3" = 1'-0"

NOTES:

1. THREADED INSERTS SHALL BE PREQUALIFIED BY THE MANUFACTURER AS BEING CAPABLE OF DEVELOPING A NOMINAL SHEAR RESISTANCE OF 20 KIPS PER ⅞" ø S.S. (STAINLESS STEEL) BOLT. S.S. BOLTS SHALL BE ⅞" ø x 1½" LONG FULLY THREADED CONFORMING TO ASTM F593D WITH AISI TYPE 304N S.S. WASHERS. INSERTS FOR ⅞" S.S. BOLTS SHALL BE GALVANIZED AND CAST INTO THE TRANSITION.

2. ⅞" ø HIGH STRENGTH BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F3125 AND BE GALVANIZED. USE ADDITIONAL WASHERS AS REQUIRED TO PROPERLY ENGAGE THE BOLTS.

3. FOR AN APPROACH GRADE IN EXCESS OF 3%, THE TRANSITION TOP AND THE TOP OF CURB SHALL FOLLOW THE APPROACH GRADE. THE HEIGHT OF THE TRANSITION TOP SHALL VARY PROVIDED THAT THE MINIMUM DIMENSIONS SHOWN ON THE CONSTRUCTION DRAWINGS ARE MET. THE BOTTOM OF THE TRANSITION BASE SHALL BE SET LEVEL WITH THE MINIMUM EMBEDMENT DEPTH SHOWN. THE TERMINAL CONNECTOR INSERT GROUP SHALL BE SLOPED TO FOLLOW THE APPROACH GRADE.

   FOR AN APPROACH GRADE UP TO 3%, THE TRANSITION MAY BE CAST SQUARE AND SET PLUMB WITH THE MINIMUM EMBEDMENT DEPTH SHOWN. THE TERMINAL CONNECTOR INSERT GROUP SHALL BE SQUARE TO THE POST.

4. USE LATEST CONTRACT COMPLETION YEAR IN EFFECT WHEN THE FIRST GUARDRAIL TRANSITION IS CAST. USE THIS YEAR FOR ALL GUARDRAIL TRANSITIONS.

5. ALL CONCRETE FOR THE PRECAST HIGHWAY GUARDRAIL TRANSITION SHALL BE 5000 HP CEMENT CONCRETE.

6. LIFTING DEVICES (NOT SHOWN), INCLUDING THEIR NUMBER AND LOCATION, SHALL BE DESIGNED AND DETAILED BY THE PRECASTER. THEY SHALL BE GALVANIZED AND SHALL BE PLACED AND RECESSED IN POCKETS TO PROVIDE 1½" CLEAR COVER TO THE FACE OF THE TRANSITION CONCRETE. THESE DEVICES SHALL BE CLEARLY SHOWN ON THE SHOP DRAWINGS ALONG WITH ALL SUPPORTING CALCULATIONS AND/OR CATALOG CUTS. ONCE THE PRECAST TRANSITION IS SET IN PLACE, THE LIFTING DEVICE POCKETS SHALL BE FILLED WITH A NON-SHRINK GROUT THAT MATCHES THE COLOR OF THE TRANSITION CONCRETE WHEN CURED AND THE FILLED POCKETS SHALL BE RUBBED WITH A CORUNDUM STONE TO BLEND OUT THE JOINTS.

WINCHESTER
SHORE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	19	21
PROJECT FILE NO.		-	

PRECAST HIGHWAY GUARDRAIL TRANSITION (1 OF 2)

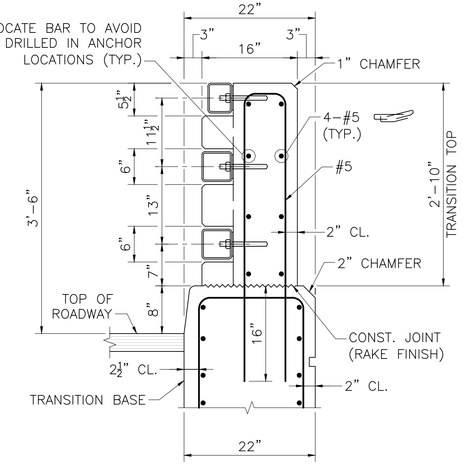
DATE	DESCRIPTION
APRIL 30, 2025	ISSUED FOR BID
USE ONLY PRINTS OF LATEST DATE	

16421.00_BR(HGT 1 OF 2).DWG Plotted on 30-Apr-2025 2:08 PM

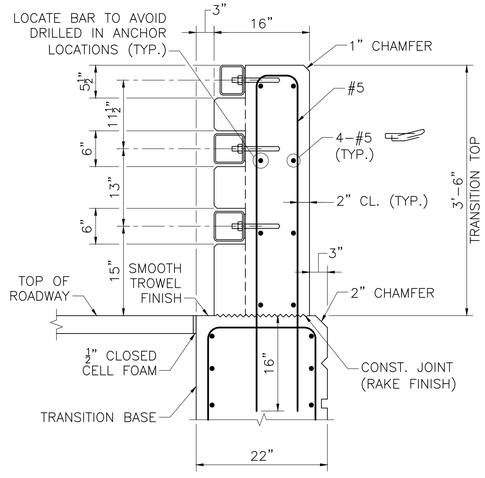
WINCHESTER
SHORE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	20	21
PROJECT FILE NO.		-	

PRECAST HIGHWAY GUARDRAIL
TRANSITION (2 OF 2)

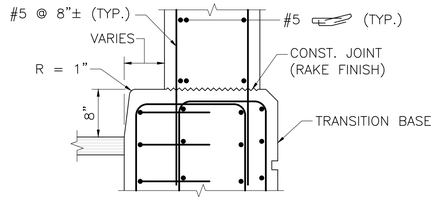


SECTION AT SAFETY CURB

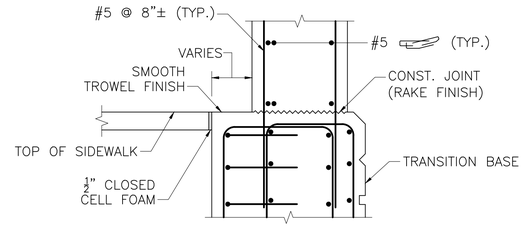


SECTION AT SIDEWALK

SECTION 4
SCALE: 1" = 1'-0"

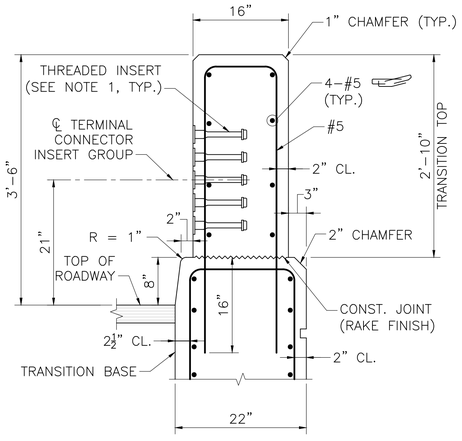


SECTION AT SAFETY CURB

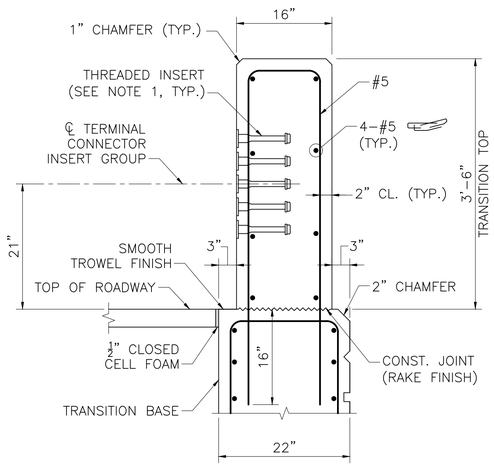


SECTION AT SIDEWALK

SECTION 6
SCALE: 1" = 1'-0"



SECTION AT SAFETY CURB

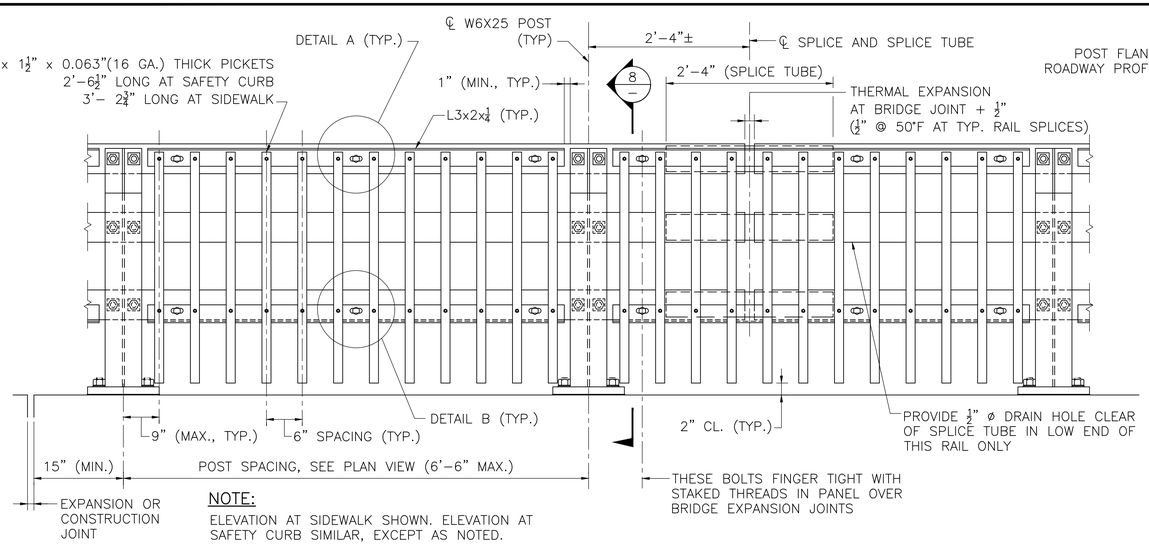


SECTION AT SIDEWALK

SECTION 5
SCALE: 1" = 1'-0"

APRIL 30, 2025	ISSUED FOR BID
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

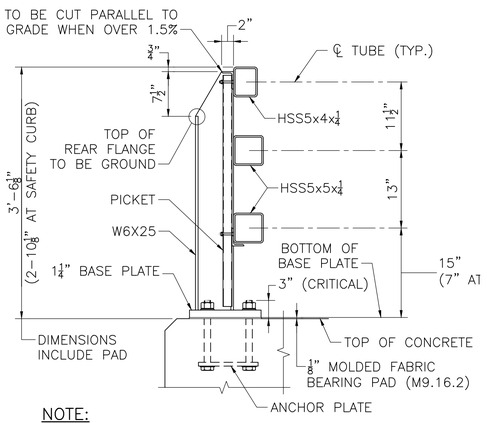
16421.00_BR(HGT 2 OF 2).DWG Plotted on 30-Apr-2025 2:08 PM


℄ W6X25 POST (TYP)
DETAIL A (TYP.)
2'-4"±
℄ SPLICE AND SPLICE TUBE
1½" x 1½" x 0.063"(16 GA.) THICK PICKETS
2'-6½" LONG AT SAFETY CURB
3'- 2¾" LONG AT SIDEWALK
1" (MIN., TYP.)
8
2'-4" (SPLICE TUBE)
L3x2x¼ (TYP.)
THERMAL EXPANSION AT BRIDGE JOINT + ½" (½" @ 50°F AT TYP. RAIL SPLICES)
DETAIL B (TYP.)
9" (MAX., TYP.)
6" SPACING (TYP.)
2" CL. (TYP.)
PROVIDE ½" ø DRAIN HOLE CLEAR OF SPLICE TUBE IN LOW END OF THIS RAIL ONLY
15" (MIN.)
POST SPACING, SEE PLAN VIEW (6'-6" MAX.)
EXPANSION OR CONSTRUCTION JOINT
THESE BOLTS FINGER TIGHT WITH STAKED THREADS IN PANEL OVER BRIDGE EXPANSION JOINTS

NOTE:
ELEVATION AT SIDEWALK SHOWN. ELEVATION AT SAFETY CURB SIMILAR, EXCEPT AS NOTED.

BRIDGE RAILING ELEVATION

SCALE: 1" = 1'-0"



NOTE:
SECTION AT SIDEWALK SHOWN. ELEVATION AT SAFETY CURB SIMILAR, EXCEPT AS NOTED.

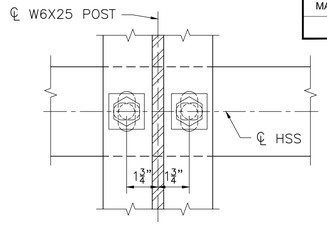
SECTION 8 –

SCALE: 1" = 1'-0"

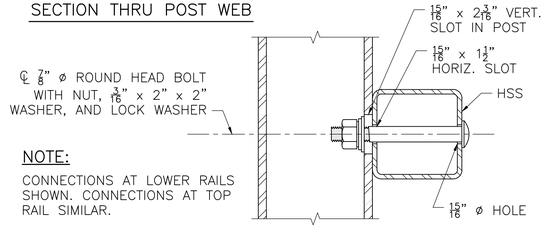
WINCHESTER SHORE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	21	21
PROJECT FILE NO.		-	

S3-MTL4 BRIDGE RAILING



SECTION THRU POST WEB

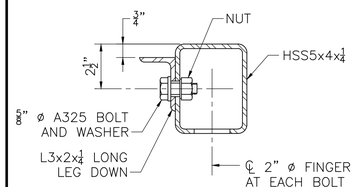


NOTE:
CONNECTIONS AT LOWER RAILS SHOWN. CONNECTIONS AT TOP RAIL SIMILAR.

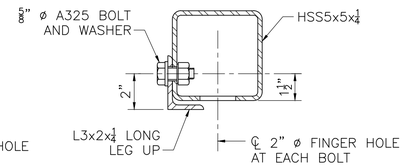
SECTION THRU RAIL

TYPICAL RAIL TO POST CONNECTIONS

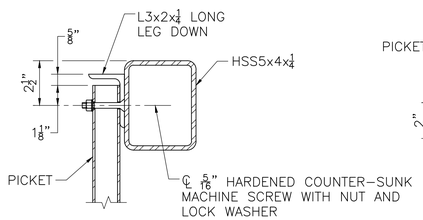
SCALE: 3" = 1'-0"



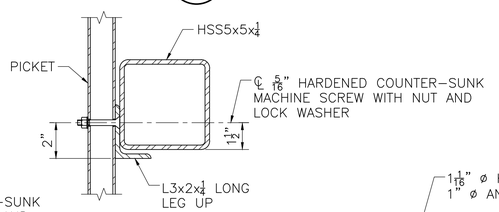
SECTION 9 –



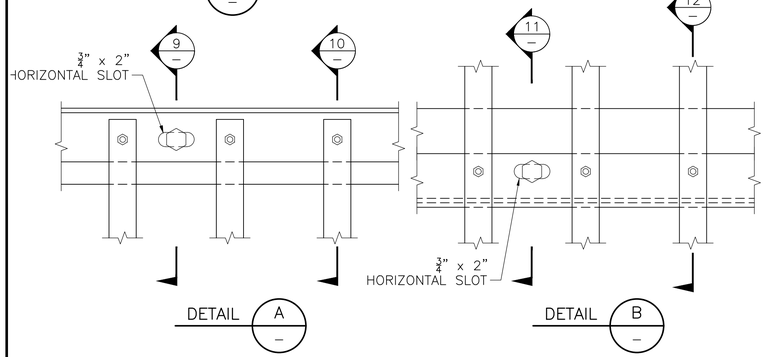
SECTION 11 –



SECTION 10 –

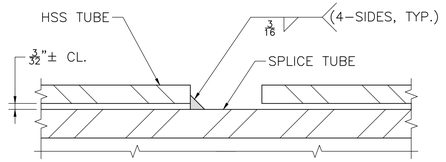


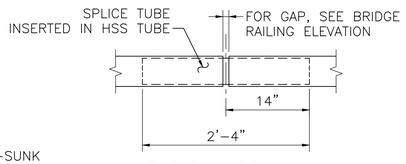
SECTION 12 –



TYPICAL PICKET TO RAIL DETAILS

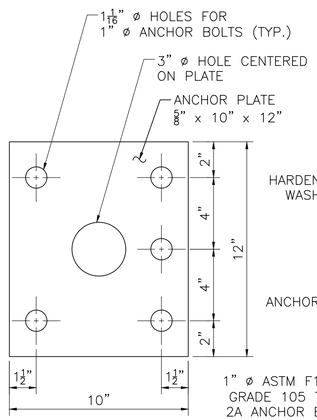
SCALE: 3" = 1'-0"





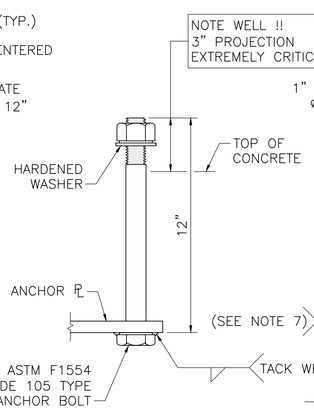
TYPICAL SPLICE

SCALE: 1" = 1'-0"



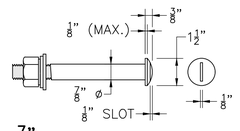
ANCHOR PLATE

SCALE: 3" = 1'-0"



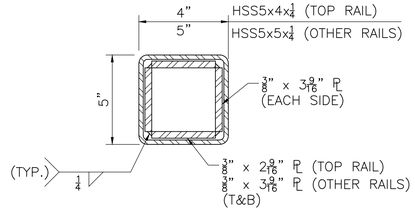
ANCHOR BOLT

SCALE: 3" = 1'-0"



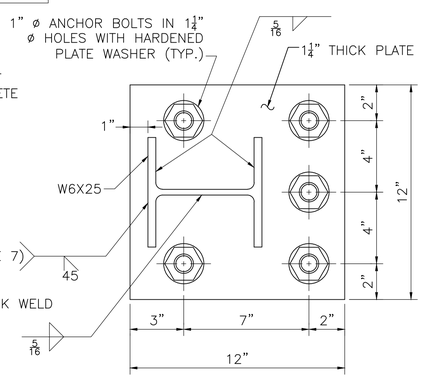
⅞" ø ROUND HEAD BOLT

SCALE: 3" = 1'-0"



SPLICE TUBE DETAILS

SCALE: 3" = 1'-0"



BASE PLATE

SCALE: 3" = 1'-0"

RAILING NOTES:

1. RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 270 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING (HSS) SHALL CONFORM TO THE REQUIREMENTS OF ASTM A 500 WITH A CERTIFIED Fy = 50 KSI MINIMUM. THE MINIMUM HORIZONTAL BENDING RADII OF THE HSS TUBING SHALL BE 8 FEET. PICKET CARRIER ANGLES, ANCHOR PLATES, AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 270 GRADE 36. PICKET TUBING SHALL CONFORM TO ASTM A 513 WITH Fy = 36 KSI MIN. OR A 500 GRADE B.
2. ALL STEEL (EXCEPT THE ⅝" ANCHOR PLATE AND FASTENERS) SHALL BE PAINTED BLACK (FEDERAL STD. 595B COLOR NO. 17038). ANCHOR PLATE SHALL BE GALVANIZED ONLY. HEADS OF ⅞" ø ROUND HEAD BOLTS SHALL BE PAINTED TO MATCH RAIL.
3. ANCHOR BOLTS SHALL BE SET WITH TEMPLATES. THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/8 TURN AFTER STEEL IS IN PLACE.
4. RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF FOUR (4) POSTS WITHOUT SPLICES WHERE POSSIBLE. IN ADDITION SPLICES SHALL ALSO BE LOCATED IN RAILS OVER BRIDGE EXPANSION JOINTS.
5. ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
6. POST TO FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING. BEVEL OUTSIDE FLANGES OF POST. FIT POST TO BASE PLATE. WELD 5/16" FILLET ON INSIDE OF FLANGE AND WEB. BACKGOUGE OUTSIDE OF FLANGE TO SOUND METAL. COMPLETE GROOVE WELD WITH MINIMUM OF ⅛" REINFORCEMENT. WELD IS THE SAME ON BOTH FLANGES.
7. ⅞" ø ROUND HEAD BOLTS SHALL CONFORM TO THE CHEMICAL AND PHYSICAL REQUIREMENTS OF ASTM F3125 GRADE 325 TYPE 1 GALVANIZED.

DATE	DESCRIPTION
APRIL 30, 2025	ISSUED FOR BID
USE ONLY PRINTS OF LATEST DATE	

SHEET 9 OF 9 SHEETS BRIDGE NO. W-40-029 (2D8)

16421.00_BR(DETAILS).DWG Plotted on 30-Apr-2025 2:26 PM